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ArtAbility: Using Multi-genre Arts Programming to Support Creative Engagement and Social and Emotional Learning in Middle-School Students with Autism

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Abstract: *This paper describes ArtAbility, a multi-genre arts program for middle-school students with autism. The evaluation of program outcomes used behavioral checklists, interviews with program staff (including teaching artists, administrators, and neurotypical teen mentors), parent surveys, and interviews with participants. Findings indicate that the program positively impacted participants' creative engagement, as well as their social and emotional learning.*

ArtAbility is a collaborative arts education endeavor involving local arts organizations and a special education school in Montgomery County, Maryland. ArtAbility was launched 4 years ago with the aim of offering a multi-genre arts program for middle-school students with autism. Many individuals with autism struggle with significant social cognitive challenges, as well as difficulties engaging in pretend play (Sigman & Capps, 1997). We hypothesized that a multi-genre arts program would not only provide a rare opportunity for students with autism to experiment with a wide range of artistic genres—including drama, music, puppetry, visual arts, and movement—but also to develop social and emotional skills in the context of a safe and highly motivating learning environment.

Each summer, ArtAbility has served approximately 20 middle-school students with autism. The 3-week summer program is taught by a multi-disciplinary team of teaching artists. Instruction is also supported by special educators and behavior specialists and a group of approximately 10 neurotypical teen mentors.

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During Year 3 of the ArtAbility program, we evaluated program outcomes via a combination of quantitative and qualitative measures. Our preliminary findings suggested that by the end of the 3-week program, participants demonstrated gains in creative engagement, as well as improved self-advocacy, social interactions/friendships, emotion regulation, flexibility, empathy/support for others, and self-confidence.

The purposes of this paper are to (a) review the literature on autism and arts-based education and provide a justification for why multi-genre arts education makes sense for this population given the social-cognitive challenges often associated with autism; (b) provide a detailed description of ArtAbility; (c) summarize program evaluation findings from Year 3 of the program, and (d) share insights gleaned from administering the program for 3 years.

Literature Review

Autism and Brain-Based Differences

Research indicates that individuals with autism can experience the world quite differently from their neurotypical peers. This is because children with autism are born with certain brain-based differences that can impact what is referred to as "social cognition"—the range of behaviors used to process, store, and apply information associated with navigating varied social contexts (Fiske & Taylor, 2013). According to Klin, Jones, Schultz and Volkmar (2003), individuals with autism lack an innate ability to interpret and respond to the everchanging array of stimuli (e.g., spoken language, tone of voice, body language, and other context cues) that are part of naturally occurring social interactions. They may also appear rigid and inflexible, in large part because they have a hard time making sense of their social environments, determining which details are most relevant and which can be ignored, and making the necessary moment-by-moment behavioral adjustments. Because the ability to read social situations serves as a foundation for the development of other critical social and emotional skills, the social cognitive differences associated with autism can significantly impact joint attention, perspective-taking, initiating and maintaining social interactions, advocating for getting their needs met (e.g., asking for help, asking for a break), and coping with frustration and changes to routines (Sigman & Capps, 1997).

Brain-based differences associated with autism also appear to impact the way in which children with autism play—with most having a hard time engaging in pretend play, especially spontaneous make-believe involving human drama (Sigman & Capps, 1997). The ability to engage in spontaneous imaginative play is important, as it helps children develop language and social skills, communicate emotions, and solve problems.

Because healthy human development depends on the ability to learn through social interaction and play, atypicalities in both social cognitive processing and pretend play mean that without *explicit and targeted support* for developing skills in these domains, important opportunities for social

and emotional learning may be lost (Sigman & Capps, 1997; Vermeulen, 2009).

The medical model has traditionally taken a deficit-based approach to autism, focusing on identifying areas of disability, and alleviating symptoms by trying to "fix" what is perceived as being "wrong" (Jaarsma & Welin, 2012; Kapp, Gillespie-Lynch, Sherman, & Hutman, 2013). Although *ArtAbility* program staff and the authors of this paper recognize the very real challenges associated with autism, the program is based on an underlying philosophy of "deficit as difference" (Kapp et al., 2013). In other words, we reject a deficit-based approach, and instead take a strengths-based approach that embraces neurodiversity as a naturally occurring phenomenon, seeking to identify and build on the native abilities and interests of program participants with autism.

Autism and Arts Education

Some research addressing autism and artistic media has focused specifically on art therapy and music therapy-–both of which are specific forms of psychotherapy involving the nurturance of self-expression through painting, drawing, or music making/music listening. This is quite different from arts and music education, which focuses on teaching students specific arts techniques, but may result in collateral gains in social and emotional learning.

Several other studies have specifically sought to measure the impact of theater-based arts education programs on young people with autism. For example, two studies by Corbett and colleagues (Corbett et al., 2010; and Corbett et al., 2015; Corbett et al., 2016; Corbett, Blain, Ioannou, & Balser, 2016) measured the impact of SENSE Theatre, a theatre education program that paired elementary and middle school-aged children with autism with typically developing peer mentors. They used a combination of live and video modeling by peer mentors to help participants with autism learn their parts. SENSE Theatre did not provide explicit instruction in social skills, but focused instead on creating numerous natural opportunities for participants with autism to interact with their peers and peer mentors by engaging in role playing activities and other improvisational theatre games. The program culminated in a full-scale theatre performance. Outcomes based on a variety of standardized tests included improved facial recognition, theory of mind, and social interaction skills.

Another study, by Reading and colleagues (Reading, Reading, Padgett, Reading, & Pryor, 2015), examined the impact of a theatre rehearsal and production process on 17 to21 year-olds with autism. As with SENSE Theatre, no explicit social instruction was provided, although authors hypothesized that social and emotional learning would take place as a result of increased focus on perspective taking and opportunities for naturally occurring social interaction. A rating tool developed for the purposes of the study found increases in social responsiveness, acknowledgement of the perspectives of others, and participation and cooperation.

Taking a slightly different approach, a study by Guli and colleagues examined outcomes related to the Social Competence Intervention Program (SCIP), a drama-based group intervention for children with autism and other social cognition challenges (Guli, Semrud-Clikeman, Lerner, & Britton, 2013). Unlike the studies described previously, SCIP is primarily a social skills intervention that incorporates drama-based features. Findings indicated that SCIP participants demonstrated significant improvements in positive interactions with peers, as well as decreased solitary play, although standardized behavioral measures failed to reveal any significant differences between participants and controls. Similarly, a study by Lerner, Mikami and Levine (2011) measured the impact of a "socio-dramatic affective-relational intervention" (SDARI) on elementary and middle school students with autism. As part of a 6-week summer program, participants engaged in a performance-based social skills curriculum that included improvisational games and focused on relationship building. Like SCIP, even though SDARI was not technically a theatre program, it utilized some of the same types of role playing activities as the programs described above. Outcomes of the SDARI program included gains in social assertiveness and the ability to detect emotions in other people's voices, but no significant changes in the ability to read non-verbal cues or in social skills more broadly.

Each of these studies contributes to a small but growing body of research suggesting that theatre-based programming can have a positive impact on the social and emotional learning of young people with autism. As authors point out, drama-based activities provide rich opportunities for participants to consider the perspectives of various characters and practice conveying how characters are thinking and feeling. Examinations of theoretical links indicate that drama could further provide a means of developing skills related to emotion recognition, emotion expression, and use of body language. Because theatre work is ensemble-based, participation encourages development of skills necessary for cooperating with others, including maintaining eye contact, listening to others' points of view, and negotiating differences of opinion (Gabriel, Angevin, Rosen, & Lerner, 2016; Reading et al., 2015; Roy, 2007).

There are a number of limitations to existing research, however. First, studies have only looked at drama-based education for young people with autism. No research to date has examined the impact of multi-genre arts education for this population. Second, the studies described above either (a) focus primarily (or exclusively) on theatre education, with the assumption that improved social and emotional skills will naturally result without need for explicit instruction; or (b) focus primarily on social and emotional learning instruction, using dramatic activities as vehicles for this but failing to explore theatre as an artistic medium in its own right. No programs to date have provided explicit instruction in both arts education and social and emotional learning. Third, each of these studies relied almost entirely on quantitative

measures (usually standardized tests), with little or no attempt to describe what social and emotional learning improvements look like within the context of naturally occurring social interactions. Qualitative measures would allow us to further describe the nuances of arts-based social and emotional learning for participants with autism. Finally, minimal to no information was provided on the training of staff to implement arts-based interventions for participants with autism.

ArtAbility Goals and Objectives

In order to address these limitations, and given what is known about autism and the social cognitive challenges associated with autism, the ArtAbility program was designed to do the following:

- Provide participants the opportunity to explore a wide range of art forms (including drama, movement, puppetry, music, and visual arts), and implement activities explicitly targeting the development and use of participants' imaginations;
- nurture the development of social cognition by providing explicit instruction designed to increase social awareness, as well as embedding natural opportunities throughout the day for participants to practice social and emotional learning skills;
- foster the creation of an ensemble-based artistic community that works collaboratively to develop a final artistic product; and
- offer specialized instruction by trained personnel designed to meet the unique needs of middle school participants with autism.

In terms of the Year 3 program evaluation study, authors hypothesized that participation in the ArtAbility program would result not only in improved artistic engagement, but also result in improved social and emotional learning. In order to complement existing quantitative studies, we included several qualitative measures enabling us to provide detailed descriptions of the types of changes that stakeholders observed over time.

Description of Artability

Program Overview

ArtAbility was originally created through a grant-funded initiative designed to bring together local nonprofit organizations in Montgomery County, Maryland, to develop a partnership that would create original programming opportunities for a group of middle school students who are traditionally underserved (e.g., students with disabilities, lower income students). ArtAbility was designed as a multi-genre arts program specifically intended for middle-school students with autism. As mentioned earlier, the focus of the program is on developing participants' creative engagement, as well as social and emotional skills. Imagination Stage, a performing arts center with over 35 years of experience in providing theatre and theatre education programs to children of all abilities, has consistently served as the lead partner for ArtAbility, working in collaboration with other nonprofit entities including Ivymount School, the Glen Echo Park Partnership, and several other nonprofit organizations.

Program Schedule

The basic building blocks of the ArtAbility daily schedule are consistent throughout the length of the program, although influenced by each day's specific artistic content. The four basic elements of the schedule include:

- Gathering activities designed to provide an opportunity for participants to transition into the program each morning, use preferred activities and themes as entry points, and also create opportunities for welcome, acknowledgement, focus, and engagement within the community as the group begins the day;
- goup/ensemble rehearsal, which consists of ensemble building, group brainstorming, or, in the early days of the program, devising activities as described below, and/or refinement of scenes and sequences in preparation for the sharing of the final artistic product;
- rotations into specific classes/workshops in each of the five artistic media (drama, movement, puppetry, music, and visual arts), many of which involve developing skills and/or materials to be used in the collaborative final artistic product; and
- full group closing activity designed to celebrate the diversity and artistic contributions of each participant, while further strengthening the sense of community.

In addition to these components of the daily schedule, other activities are built into the program to further nurture a sense of community and provide participants the opportunity to develop socialization and communication skills and build meaningful connections that will ideally serve as foundations for friendships. These activities include free play and structured break activities, group recess and lunch, and special events (e.g., performances, rides on the historic Glen Echo Park carousel).

Staffing Support

Staffing within ArtAbility is designed to allow content specialists to deliver high quality arts instruction within a safe and supportive environment and provide a wide range of strategies to support individual content mastery, meaningful social engagement, and membership within the artistic community.

In addition to the administrative project staff from each partner organization (usually two to four people, depending on organizational size and project role), logistics support is provided by an onsite program manager and assistant program manager who coordinate and communicate with participants, staff, and families on a daily basis. Four teaching artists (TAs)—many of whom have previous experience with students with autism—make up the core teaching team and focus on individual art forms (i.e., drama, movement, music, puppetry/ visual arts), and the collaborative ensemble-based artistic product. One TA also serves as the "lead," ensuring consistency of curriculum content, as well as identifying needed participant support strategies and materials. A behavior support team provided by the Ivymount School consists of two full-time, on-site classroom assistants who are expert in supporting students with autism, as well as a Board Certified Behavior Analyst (BCBA)

who oversees the classroom assistants and the behavior support infrastructures of the program and provides ongoing phone/email consultation when not on site.

Some of the most important staff members within the program are our teen mentors. These high school students are chosen through a rigorous application and interview process each year and receive specialized training to aid them in providing individualized participant supports and fostering an inclusive artistic community where every participant is able to experience meaningful engagement and belonging. The teen mentors have a very special connection to the participants. Being closer in age to the participants than other staff, they are immediately looked up to as role models, and in fact several participants have expressed interest in becoming teen mentors within the program in the future. Teen mentors are either assigned to work 1:1 with an individual participant throughout the program or serve as "floaters" supporting the general participant community. Teen mentors are supervised and supported by the lead TA and onsite program manager, who oversee logistics and individual support assignments but also work with teen mentors to help them process and learn from daily experiences within the program.

Participant Profile and Preparation

Perhaps one of the most unique aspects of ArtAbility is that the program is not designed to cater to one "type" of autism or specific level of functioning. Often programs for individuals with autism are designed to serve one particular group whose members present similar social behaviors, communication styles, or cognitive development. ArtAbility welcomes any Montgomery County, middle-school student with autism to the program. This allows participants to try on social roles that are not typically available in their regular school settings. For example, participants who may be able to "keep up" in a traditional classroom environment but not necessarily serve as social or academic leaders are given the opportunity to serve as peer models and leaders within the ArtAbility community. Likewise, participants who experience significant challenges related to communication and/or behavior, and are more likely to be placed in self-contained classrooms, are given the opportunity to be exposed to a wide range of positive behaviors and participate in a rich artistic environment that celebrates who they are, and incorporates their contributions into the artistic process and final collaborative product. While this diversity can understandably present challenges for the artistic team, we have found that the benefits of a more inclusive approach outweigh the more difficult aspects of this structure, resulting in deeper levels of respect, understanding, and empathy among the participants themselves.

ArtAbility participants receive a host of pre-program preparation materials to ready them for the ArtAbility experience. They are provided with a "Social Story" with photos and text outlining the program location, elements, expectations and goals. Social Stories were originally developed by Carol

Gray (2000). They are brief, customized essays that describe a specific situation (e.g., attending ArtAbility, going to a restaurant) in terms of what to expect and how to behave in a socially appropriate manner. Social Stories are often accompanied by images illustrating expected behaviors. Participants also receive a staff "facebook" that includes pictures of the entire onsite staff as well as a few short fun facts that highlight interests and personalities and a daily schedule that provides a breakdown of activities and rotations for each day. All of these measures are designed to alleviate anxieties—particularly important in a program of such short length—and provide a level of comfort that allows for more concentrated focus by participants on the exploration of art forms and the creative process.

The Artistic Process

ArtAbility is designed to be a participant-centered, collaborative artistic process that culminates in the creation of an entirely original performance art piece. Multiple entry points to the artistic process allow all participants an opportunity to contribute to the final artistic product and outcomes. Over the years, the TAs have used a variety of different methods to create a system of "devising by consensus," allowing for a flow of original ideas that serve as the backbone of the participant-created work. For example, on a given day TAs might either use participants' individual affinities, favorite objects, or preferred topics as inspiration for creating small stories that can then be combined into a larger expanded plot. Another devising approach encourages participants to create work around a chosen theme (e.g., "the best day ever") using music, visual art, movement, or writing. Creations are shared by participants and then woven together into a finalized performance piece. Still another devising method uses a story template written out in a "mad lib" style with specifics of plot, characters, relationships, location, conflict, and resolution left blank. Participants then work together in small groups to fill in information and create a cohesive story. Once the stories are shared, participants work together to find ways to connect and combine the stories, which often requires making choices and compromising with their fellow artists. It should be noted that these devising techniques were not used simultaneously but were often chosen and adapted to align with the needs of participants as the TAs became more familiar with their individual learning styles. All of these approaches allow for extremely diverse and unique contributions by each participant while maintaining artistic structures that provide some parameters to support good story development. Throughout each of these devising approaches, TAs challenge participants to reach artistic compromise through active listening, patience, flexibility, and creativity—skills that are challenging for any young artist to master, but particularly so for young artists with autism.

Adapting each activity to provide multiple entry points and a variety of frames for both individual and group success is an ongoing process within ArtAbility. The teaching staff thinks about each activity, focuses on the "essence" of the desired outcomes, and then

creates a wide range of adaptations that allow everyone to participate—even if it means not everyone is doing the same thing or engaging in the same way (for example, in a game that requires a verbal response to indicate acknowledgement, participants might be given the option to drop a bean bag as a means of acknowledging). Visual supports are used consistently in the delivery of content—be they pictures, diagrams, or specific physical gestures or movements to clarify both artistic and social concepts. Another key element of the ArtAbility approach is that regardless of how small the contribution, efforts are made to incorporate as many participant ideas as possible into the creative process.

ArtAbility is somewhat unique in how it approaches the neurodiversity of its participants. Rather than starting with a program curriculum and then creating accommodations for each participant to help them access the planned material, the teaching team works to assess the unique strengths of each participant and then designs a program that not only provides equitable access to the experience, but utilizes these strengths as the building blocks of the artistic process. This approach provides opportunities for a richer, more multi-faceted artistic product. One example is a participant who utilized an iPad for communication and often struggled to control his body. This smart young man originally struggled with how to contribute to the ensemble in a way equal to his peers and how to have his contribution recognized by the audience during the final sharing. In the early days of the program, the staff learned that he shared with his parents that "Typing is not acting." The teaching team soon recognized that this participant possessed extraordinary writing skills and a highly sophisticated sense of humor. To fully utilize these strengths, the participant was encouraged to take responsibility for writing lines and monologues for both his and other characters. Pushing his creativity even further, he was able to designate specific teen mentors to speak his own lines while he provided very specific feedback regarding accent, inflection, and rhythms for the character. Artistic and dramaturgical decisions were then made to support the structure of having a character represented physically by one person and verbally by another. This specific example shows how the teaching team was able to not only ensure that each member of the ensemble had responsibility for one or more aspects of the final artistic product; but also made sure non-traditional communicators would be seen as having equal "power" in the artistic process and the overall dramaturgical structure of the piece when compared to their more verbal peers.

Behavior Support

The neurodiversity of ArtAbility participants requires a detailed, group-based behavior support system coupled with several individualized behavior support systems. One of the most important general provisions is clear expectations for participants regarding the use of space and time. In the large room where most of the program takes place, the teaching team utilizes spike tape, colored poly spots, and specific wall coverings or other pieces of

equipment or furniture to create defined, consistent sections within the room with clear expectations for usage (e.g., a music listening station, art tables, and delineated break areas). Forecasting of short and long range schedules is provided through clearly displayed visuals, clear warnings before transitions, and a program timeline displayed on the wall (and traveled by the "Drama Llama" each day) that breaks down the individual steps of the artistic process by week and day, and tracks the progress of the group as it moves toward the final artistic product. These types of support also help participants improve their executive functioning skills (e.g., goal setting and planning behaviors).

Clear expectations for group/ensemble behavior are also outlined on Day 1 and include staying focused, remaining flexible, being a good friend, keeping a safe body and calm voice, and having fun. These expectations for all members of the ensemble are discussed and reviewed often in the early days of ArtAbility, and then again as needed. Expectations are displayed clearly in the program space along with accompanying images. To further support and incentivize the group, the staff recognizes positive behaviors through a system called pom-pom nominations or "pom-noms." A large clear plastic jar holds brightly colored pompoms that are given by staff and teen mentors to recognize the actions of one participant or the overall collaborative work of the group in a particular activity. Once there is a clear understanding of what "pom-noms" represent, staff also encourages participants to nominate each other, and in this way, each participant is recognized for his or her agency in contributing to the success of the group by earning a "pom-nom" for the jar. When the jar is completely filled—usually towards the end of the program—the whole group receives a special treat (e.g., a special outing and popsicles).

In addition to clear expectations for group behavior, many participants require individualized supports to reinforce positive behaviors. They work to earn points or tokens throughout the program day and are rewarded with time for engaging in a preferred activity (e.g., reading a favorite book, swinging on the playground, or watching a short video), or a larger incentive at the end of the day that is pre-arranged and supported by the parent/ caregiver. Some participants require individualized schedules they can check off or extra timed breaks—often with specific sensory input, such as time in a bean bag chair or utilizing certain manipulatives. Other support systems were individualized to address particular participants' needs. One such example was a system designed for a young man who struggled to connect with his peers either within structured activities or during free-play and continually defaulted to interacting with adult staff members. The teaching team coordinated a series of personal "missions" that he needed to complete each day to earn enough points for a preferred activity/ reward. These "missions" were designed to align with the curriculum content as it was delivered, and often required direct interaction with peers

for a specific amount of time or to gain specific pieces of information—again, in conjunction with the artistic/devising process. This example demonstrates the unique nature of these individualized support systems. In this case, ArtAbility staff recognized that the participant appeared to be less motivated by a point system than by the stories and imaginative play involved in the completion of each staff devised "mission," and was thus able to use this motivator to maintain his engagement in the group process.

Summary of Program Evaluation

During Year 3 of the ArtAbility Program, authors conducted a mixed methods program evaluation that included both quantitative and qualitative components. Authors included a variety of credibility measures for qualitative research (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005). First, since no single set of data could tell the complete story of how ArtAbility impacted participants, authors engaged in the triangulation of multiple data sources to determine whether each set of data pointed to the same conclusions regarding program outcomes. Second, in an effort to be transparent, authors felt it was important to engage in researcher "reflexivity"—i.e., self-disclosing any possible biases and assumptions that could affect the analysis of data. Our authorial team included a program evaluator who served as first author and worked for Ivymount School and two ArtAbility program administrators serving as second and third authors, who worked for Imagination Stage. Although the first author was not involved in any aspects of program design or administration, the second and third authors were actively involved in the planning, design, and daily oversight of ArtAbility during Years 1 through 3. In terms of pre-existing biases, all three authors hypothesized that arts education would likely have a positive impact on social and emotional learning, embraced the philosophy of neurodiversity as a natural part of the human genome, and were invested in the program's outcomes. To avoid overly subjective interpretations of findings, the three authors collaborated on each component of research design, data collection, and analysis. Finally, to ensure social validity of study outcomes, authors conducted a "member check" wherein interview and survey respondents were given the opportunity to review findings, confirm/reject their accuracy, and offer feedback. The interviews and survey are described below.

Methods

Participants. Twenty-one middle school-aged students (10-14 years old participated in ArtAbility during Year 3 of the program. Based on parent reports, participants were diagnosed with autism, but as mentioned earlier, they represented all points along the autism spectrum in terms of both cognitive functioning and language/communication skills. Of those who were nonverbal, some were still able to communicate at quite high levels, while others' communication was extremely limited. Regardless of where they fell along the spectrum, all participants struggled with social

cognition challenges. Of the 21, eight focus participants were selected for observation based on the fact that this was their first year in the program. Another group of eight participants with more sophisticated verbal and cognitive skills was chosen to participate in brief, end-of-program interviews. There was some overlap between these two participant groups.

Data collection. The following four types of data were collected in order to measure program effectiveness and the impact of the program on participants:

***Participant observations*.** Eight program participants were each observed for one day at baseline (beginning of the summer program) and again for one day at the end of the program. A behavioral checklist was completed by two program staff (one TA and one administrator) for each focus participant in order to track the frequency of social and emotional behaviors such as self-advocacy, interacting with peers, self-calming, transitioning, helping and encouraging others, and demonstrating self-confidence. Staff rated participants' behaviors using a 4-point, Likert-type scale where 0=never, 1=rarely, 2=sometimes, and 3=often. To resolve any differences of opinion between the two staff, authors averaged both sets of scores for each participant.

***Teaching artist and program administrator interviews*.** At the end of the program, four TAs and two program administrators participated in 45-60 minute telephone interviews that included questions about changes in participants' performance across the following domains: engagement in the creative process, self-advocacy, social interactions, emotion regulation/self-calming, flexibility, concern for others, and self-confidence.

***Parent surveys*.** Fourteen of the 21 parents completed the online survey regarding whether or not they observed improvement in their children's social and emotional skills. Questions included both 4-point Likert-type scales (i.e., where 0=no improvement, 1=minimal improvement, 2=moderate improvement, and 3=significant improvement) and open-ended questions.

Participant interviews. Eight of the most communicatively active participants were interviewed by program administrators at the end of the program regarding which aspects of ArtAbility they liked most, whether they felt supported by program staff and peers, and whether the program was a good place to make friends. Three-point Likert-type scales (i.e., where 0=never, 1=sometimes, and 2=always) were made more salient for participants by including green smiling faces, yellow neutral faces, and red frowning faces.

***Data analysis*.** In terms of quantitative data, analysis of observational data was conducted using Excel to calculate frequencies of behaviors across participants at baseline and end-of-program and to measure any observed changes over time. Excel was also used to analyze Likert-type responses from TAs/administrators, parents, and participants. In each of these cases, means

were calculated across respondents (e.g., mean growth in participants' skills as reported by TAs/administrators and parents), although sample size was deemed too small to calculate statistical significance.

In terms of qualitative data, open-ended interview and survey responses from TAs/ administrators, parents, and participants were analyzed using methods described by Miles and Huberman (1994). First, each author independently reviewed survey and interview transcripts, and identified and labeled all instances where respondents provided examples of program outcomes. This level of analysis is often referred to as the identification of emergent categories (Bazely, 2009). Second, authors met to review and consolidate findings and to establish a coding tree based on agreed-upon categories. The first author then went back and coded all transcripts accordingly, engaging in an iterative process wherein the three authors continued to refine categories and recode transcripts until they agreed they had accurately accounted for all data.

***Social Validation*.** In order to establish the social validity of our findings, we conducted a "member check." A bulleted list of key findings was distributed via email to TAs, administrators and parents. Respondents were asked to confirm and/or disconfirm findings, and to provide feedback on points authors may have overlooked. All confirmed that findings accurately reflected their perceptions of program outcomes.

Findings

Participant observations. Based on baseline and end-of-program checklists completed by program administrators for the eight focus participants, it appeared that on average focus participants demonstrated growth in all nine domains (see Table 1). Areas of most significant growth (i.e., 0.75 points or more out of a possible 3.0 points) included advocating for needed supports (e.g., asking for help, requesting permission to take a break), offering to help peers, and demonstrating self-confidence. Other areas where focus participants demonstrated more modest growth (i.e., between 0.5 and 0.75 points out of a possible 3.0) included interacting with staff, interacting with peers, waiting for a turn, encouraging peers, and engaging in the creative process. The two domains where participants demonstrated only minimal growth (i.e., less than 0.5 points) was transitioning from one activity to another and waiting for their turn, and this was likely attributable to the fact that focus participants' baseline scores in these domains were already quite high. In terms of composite scores (i.e., average scores across domains), mean participant scores increased by more than 0.5 from baseline to end-of-program.

Table 2 provides information on observed growth (based on composite scores) for each of the eight focus participants. A comparison of composite scores at baseline and end-of-program indicated that scores increased for seven of the eight focus participants (all except FP1 for whom administrators noted very slight regression). The most dramatic growth (i.e., growth of anywhere from 0.75 to 1.25 out of a possible 3.0 points) was

observed for the four focus participants who entered the program with the lowest baseline scores (i.e., FP2, FP4 , FP6, and FP7).

***Staff and parent interviews*.** For the purposes of this study, we combined our qualitative analyses of TA/administrator interviews and parent surveys, as responses were similar across both groups. Data

TABLE 1. Checklist Documenting Changes in Participant Behavior Over Time by Domain

Behavior	Baseline	End-of Program	Difference
Advocates for help	1.81	2.56	0.75
Interacts with staff	1.81	2.34	0.53
Interacts with peers	1.59	2.28	0.69
Transitions smoothly	2.28	2.71	0.44
Waits turn	2.34	2.36	0.02
Offers to help peers	0.78	1.63	0.84
Encourages peers	1.28	1.97	0.69
Demonstrates self-esteem	1.53	2.40	0.88
Demonstrates creative engagement	2.09	2.75	0.66
Average overall	1.73	2.36	0.63

TABLE 2. Checklist Documenting Changes in Participant Behavior Over Time by Participant

Participant	Baseline	End-of Program	Difference
FP1	2.25	2.17	-0.08
FP2	0.78	1.94	1.17
FP3	1.72	2.14	0.42
FP4	1.75	2.58	0.83
FP5	2.58	2.94	0.36
FP6	0.78	1.97	1.19
FP7	1.31	2.17	0.86
FP8	2.64	2.94	0.31
Average across focus participants	1.73	2.36	0.63

Note: Based on a 4-point Likert-type scale where 0=no improvement, and 3=significant improvement, parents reported modest improvements in a number of areas. Areas of greatest growth included creative engagement (2.3 out of a possible 3.0), self-advocacy (2.1 out of a possible 3.0), and social interactions (2.1 out of a possible 3.0). Parents reported less growth in terms of friendship, flexibility and self-confidence; and they reported the least growth for emotion regulation and demonstrating concern for others.

strongly supported the notion that participation in ArtAbility resulted in (a) increased creative engagement, and (b) improved social and emotional skills including self-advocacy, social interactions, friendships, emotion regulation, flexibility, showing support for others, and self-confidence.

Creative engagement. By the end of the program, staff noted much higher levels of creative engagement and participation. Not only were participants willing to step out of their comfort zones and experiment with less familiar artistic media and techniques (e.g., puppetry as opposed to coloring and drawing), but also to take greater creative risks in terms of sharing ideas and concepts for the final artistic product and/or volunteering for the daily talent show. At the beginning of the program, only a few participants were willing to perform in the talent show, but by the end, participants were so eager to perform that there was often not enough time for everyone to have a turn. Typical comments included, "The talent shows got more and more creative and exciting, and more and more people participated in terms of puppeteering … some started with zero manipulation experience and ended up creating characters and manipulating them in a really professional way," and "We'd ask [participants] quite a lot for spontaneous ideas. We asked them to sing about it, and dance it, and embody it. We definitely saw their willingness to engage increase." Several staff also noted increases over time in participants' vocal engagement, and willingness to speak more frequently and assertively, and at greater length. As the culminating performance drew near, participants were also more willing to engage in all aspects of the creative process, and participants seemed to be taking more creative initiative (e.g., selecting songs to sing or picking characters' names). One TA noted, "As we got closer and closer to the performance, students got more excited about creating the set, coming up with lines, and acting on stage."

Self-advocacy. Although a few interviewees noted that it was difficult to distinguish between improved self-advocacy skills and simply becoming more comfortable with ArtAbility routines and program culture, others observed what they felt were significant improvements in participants' self-advocacy. According to them, not only did participants become more adept at advocating for basic needs and wants (e.g., requesting bathroom breaks, asking for additional art supplies), but several participants also became more comfortable navigating challenging social situations such as opting out of a non-preferred activity, or asking to sit apart from a participant with whom they did not get along. Typical comments included, "[By the end of the program], he let me know how he was feeling … he would let me know he did not want to do something, which was a big deal for him," and "Kids who aren't friends with each other and found behaviors or scripting annoying were able to self-advocate and say, 'I don't want to sit by [him]. Can I sit with someone else?'"

***Social interactions*.** Perhaps the most dramatic change respondents noticed over time was participants' increased willingness to initiate social interactions with their peers. At the beginning of the program, many participants were tentative and/or withdrawn, but by the end of the program, they were reaching out to peers in a myriad of ways: playing with puppets together, conversing about favorite video games, eating lunch side by side, high-fiving and hugging each other. Typical comments included, "At the beginning, a lot were sort of shy. We saw a lot of participants engaged in themselves, and not venturing out, but towards the end, we saw a lot of playing with other students or asking about their lives outside the program." Respondents also commented on how surprisingly similar participants' social interactions were to those of neurotypical middle school students. For example, one TA described how lunch period evolved over time, with participants increasingly taking social initiative: "There was definitely more … students choosing who to sit next to, and instead of just eating lunch, starting up conversations not started up by teen mentors. It was nice to see conversations happen without adult prompting. And it was stuff everyone talks about: after school, games, movies, books …. By the end of lunch, it even started to get a little rowdy, in a good way. A lot of kids were comfortable with each other and themselves." This sense of comfort, ease, and belonging was a recurring theme across respondents.

One of the most interesting findings was that participants' improved social interaction skills seemed to be related to spontaneous joint engagement in the creative arts. Typical comments included, "The biggest thing was we saw kids putting on puppet shows together, independent of us. This seemed like a safe way to initiate interaction," "[Participants] started asking each other to be in the talent show together, instead of doing solos … and we started hearing them refer to one another as friends," and "One morning I noticed [another participant] got [my daughter] to sing along with him when they were waiting for camp to start." In other words, opportunities for artistic expression seemed to afford access points for connecting socially with peers, and vice versa.

Making friends. Respondents agreed that the ArtAbility program was an excellent environment for building friendships. By the end of the program, many participants were asking for each other's phone numbers, setting up play dates, and telling their parents about their new friendships. Typical comments included, "Some folks couldn't wait for their friend to show up, or tell them what happened in class, or congratulate them for doing a good job–-all kinds of things," and "There was significant improvement [by the end]–-huge high fives, hugs all over the place. It was incredible."

***Emotion regulation*.** Respondents agreed that by the end of the program, participants were better able to use self-calming strategies to regulate their emotions. Several noted that performance anxiety was an issue for some participants, but that they were able to work through

their anxieties and participate fully in the end-of-program show. Typical comments included, "I noticed improvements in a couple of students in particular in regulating emotions and advocating for breaks when they needed one," and "I definitely saw people employing self-calming strategies and self-regulation. And everyone did so well during the performance for a population that deals so much with anxiety. Everyone was so excited and willing to perform."

Flexibility. Although a few respondents noted that flexibility was not an issue for most participants at any point during the program, the majority reported that participants were more flexible by the end of the program. Participants were better able to handle schedule changes, wait in line for preferred activities or games, and transition from one activity to another. Typical comments included, "We talked a lot about flexibility, and had a hand motion to talk about how flexible we were, so every day we mentioned it …. We talked about how to handle it. For a population that's so stereotypically rigid, that was tough, and they did really well with it. We talked about part of what happens [in ArtAbility] is that we're flexible, and I definitely saw an improvement." Flexibility became such a natural part of the program that some participants took it upon themselves to remind their more rigid peers about the importance of flexibility. For example, "I also saw them helping each other be flexible, encouraging each other, saying, 'It's okay, we have to be flexible.' Little things. It was really sweet."

Support for others. One of the most powerful findings had to do with participants' growing sense of belonging to a community of artists/peers and their willingness to encourage one another during performances, praise one another's accomplishments, and comfort and reassure one another when they were experiencing difficulties. Typical comments included, "For the ones where we did see improvement, we saw amazing moments of altruism. We couldn't get [one participant] on stage for the show, and [two others] were able to get him on stage. They came over and told him it was his turn, and that he'd love it, and walked him to the edge of the stage. I don't know that he would have gotten on stage without them," and "I definitely saw them learning to care for each other and pay attention to each other, and think about what other people needed. And they were always looking around to see who needed cheering on or mentioning to someone what they thought of their performance … verbal pats on the back." Several respondents noted that this ability to really attend to one another was key to the building of an authentic arts community. In the words of one respondent, "The friendships I saw were beautiful, there was very much a growing concern for others, and a desire to create a safe space to make art and have community. When putting on a show and going through the creative process together, this is absolutely essential to the process."

Self-confidence. Finally, participants appeared to develop greater self-confidence by the end of the program.

Some were speaking more confidently. For example, "On Day 1, 2, 3, we were always reminding campers to use a big voice, and then all of a sudden we never had to remind them. They always came out with huge strong voices. It was exciting to see that change." Others were taking more creative risks, in spite of the possibility of failure. For example: "[One participant] was very hesitant because he was afraid of 'screwing up,' but towards the end he was very gung ho about doing everything." Almost all of the participants were eager to perform in the daily talent show, proud of what they had learned, and eager to demonstrate their newfound skills. In the words of one respondent, "Everyone wanted to do everything later [in the program]—do puppets, sing, show-off their art. Their self-confidence and 'look what I can create,' at the end of the [program] was a really, really wonderful time."

Participant interview data. During brief interviews, the eight most communicatively able participants were very positive about the program. In terms of the different artistic media and activities they were exposed to, most reported that they "always" liked everything. Music was the most popular medium (3.0 out of a possible 3.0), followed by drawing and painting (2.9 out of a possible 3.0), drama (2.9 out of a possible 3.0), movement and dance (2.6 out of a possible 3.0), and making puppets (2.5 out of a possible 3.0). In terms of how supportive they found their teachers and peers, participants were again very positive. They reported that their ArtAbility TAs and mentors almost always told them when they were doing a good job, and most felt that ArtAbility was a good place to make friends.

Implications and Practical Considerations

Findings from our Year 3 program evaluation were very positive, and suggest that participation in ArtAbility appears to have been related to improved creative engagement and social and emotional learning. Although we did not conduct a randomized, controlled experiment and outcomes cannot be conclusively linked to ArtAbility, stakeholders believed the causal connection was clear and evident.

There are a number of possible reasons why participation in a 3-week multi-genre arts education program like ArtAbility could result in improved participant performance. First of all, like each of the other theatre-arts programs described earlier (i.e., Corbett, Gunther et al., 2010; Corbett, Key et al., 2015; Guli et al., 2013; Lerner, Mikami & Levine, 2011; Reading et al., 2015), ArtAbility directly addresses the underlying brain-based differences associated with autism. Throughout the day, staff provides explicit instruction designed to support social cognitive processes such as joint attention and perspective taking, and the program's ensemble-based approach creates abundant opportunities for practice in applying social and emotional learning during naturally occurring interactions with peers and staff. In a recent literature review, Gabriel and colleagues clearly identified the natural affinity between theatre education programs and the unique social cognitive challenges

experienced by individuals with autism (Gabriel et al., 2016).

The ArtAbility program also directly addresses creative expression by providing explicit instruction in various artistic techniques, as well as supporting participants to use their imaginations and generate unique content. As described earlier, TAs employ a variety of activities to nurture participants' creative expression, often in group contexts requiring artistic collaboration and negotiation. Most importantly, all contributions—no matter how small—are valued and celebrated within the ArtAbility program, allowing each participant to experience the satisfaction of having their creative input both included and built upon.

We do not want to rule out the possibility that participants' improved behaviors may also have been linked to acclimatization, however. In other words, as participants became more familiar with program staff, fellow participants, and program routines, this may have resulted in increased flexibility and a greater willingness to initiate interactions. But even if acclimatization was responsible for all or part of the changes observed, it is still remarkable that such diverse participants were able, in a few weeks' time, to experience such high levels of comfort and membership within the ArtAbility community.

The ArtAbility program is unique in a number of key ways. First and foremost, accepting participants across the autism spectrum leads to a highly diverse group of learners, each requiring individualized behavior supports and access points to the curriculum. Whereas a typical program allows TAs to prepare content ahead of time, ArtAbility takes a responsive, participant-centered approach wherein content is built and delivered simultaneously in order to accommodate each participant's unique strengths and needs. This requires staff to do a lot of work "on the fly." For example, TAs cannot prepare in advance to provide what participants will need to access the script for the final artistic product, because the script is developed and evolves over the course of the program.

Another way in which ArtAbility differs from similar programs is the use of teen mentors. Based on an evaluation of the mentorship component of the program, we found that a significant number of teen mentors had decided—based on their experience as mentors—to consider a career in special education. Perhaps even more importantly, all teen mentors reported having learned to think about neurodiversity in a very different, more open-minded way (Müller, Nutting, & Keddell, 2017).

Finally, ArtAbility offers participants a rare opportunity to develop a sense of agency. Many participants—especially those with more significant cognitive and communication challenges—may be used to having decisions made for them. ArtAbility is designed to empower participants to be their own creative decision makers. Instead of being told what to do, they are encouraged to make choices

about how to use various artistic media, share their talents during the daily talent show, and develop characters and plot for the final artistic product. For some participants, ArtAbility is their first opportunity to experience themselves as creative agents. While this may result in a somewhat convoluted final product (e.g., combining crabs being taken hostage under the sea with characters entering bear caves), participants come away feeling empowered, more willing to share their ideas, and more confident connecting with peers. This conclusion is supported by recent research on the development of agency in young people (Brennan, 2013; Kumpulainen, Lipponen, Hilppo, & Mikkola, 2014).

Brennan (2013) describes the importance of cultivating young people's sense of agency. She argues that this can best be done by building on young people's personal interests and ensuring that their abilities and skills are appropriate to program goals—both key features of the ArtAbility instruction. Kumpulainen and colleagues (2014) further claim that supportive social contexts that foster a sense of agency (such as that offered by ArtAbility) are crucial to the development of children's social well-being. We recommend that future research into theatre/arts education programs further explore the collaborative experience, and its impact on participants' sense of agency.
We have identified a number of key considerations when developing a program like ArtAbility. First, the program is extremely resource intensive. This means that collaborative partnerships are absolutely essential. Although Imagination Stage has always taken the lead in implementing the program, Glen Echo Park Partnership provides space for the program, as well as logistical support, and the expertise of Ivymount School staff ensures that participants receive the behavioral support they need to experience success. Over the years, additional partner organizations have also brought strengths and assets to the program. While partnerships strengthen ArtAbility, they also create challenges of their own (e.g., scheduling meetings to bring everyone together at the same time). Furthermore, crafting a common vision that is compatible with each partner organization's mission and philosophy requires work. For example, some organizational partners initially took a deficit-based as opposed to a strengths-based approach to autism, and it was only through meeting and talking that a shared vocabulary and mission emerged. Future research might explore the nature of this sort of collaborative process, and the ways in which programs like ArtAbility can result in partners' views of disability evolving over time.

Because so many participants require intensive support, ArtAbility is an expensive program to operate and costs more than three times as much as Imagination Stage's typical inclusion programming. When factoring in both paid and unpaid staff (i.e., TAs, administrative staff, behavioral support team, and teen mentors)—most years there have been approximately 20 staff and 20 participants (or a 1:1 ratio). This poses very

real funding challenges. As mentioned earlier, ArtAbility was originally paid for in its entirety through a grant, and the program was offered at no cost to participants. Now that the initial grant has come to an end, we have had no choice but to charge tuition for participants to attend. Because many families of children with autism are already burdened with out-of-pocket medical and therapeutic expenses, it is important that we do our best to keep program costs as affordable as possible. One of the ways we have tried to keep costs down is through the generosity of individual donors.

The positive response from stakeholders regarding the relevance and impact of ArtAbility suggests the need for more programs like it. In order to leverage funds for this type of program, and given the high costs of operating ArtAbility, we hope to see more rigorous, controlled studies of similar programs that include both quantitative and qualitative measures. Research of this type will help paint a fuller, more comprehensive picture of how multi-genre arts education programming can support participants with autism to develop their imaginations hand-in-hand with key social cognitive skills.

There are many individuals without whom the ArtAbility program would not have been possible. First and foremost, we wish to thank participants for their creative risk taking and passionate engagement and their families for their willingness to share feedback on the program overall. Second, we wish to acknowledge all of the key planning staff from Imagination Stage, Ivymount School, Inc., Glen Echo Park Partnership, the Puppet Co., and KEEN who helped develop and implement the ArtAbility vision, especially all of the ArtAbility TAs throughout Years 1 through 3 of the program: Mia Branco, Liz Dapo, Mark Mumm, Emilia O'Connor, Lisa Pantano, Anna Piper, Penny Russell, Karen Suderman, and Lauren Williams. The authors also wish to extend special thanks to Mia Branco, who has served as Lead TA throughout ArtAbility, and took the time to review and comment on an earlier draft of this paper.

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