

JOINING THE SPECTRUM:

AN INTERDISCIPLINARY INQUIRY INTO THEATRE AS AN INTERVENTION FOR AUTISM DIAGNOSED TEENS

BY

AH-JEONG KIM, PROFESSOR, DEPARTMENT OF THEATRE, CALIFORNIA STATE
UNIVERSITY, NORTHRIDGE

& DAVID BOYNS, PROFESSOR, DEPARTMENT OF SOCIOLOGY, CALIFORNIA
STATE UNIVERSITY, NORTHRIDGE

This project was supported in part by an award from the *Research: Art Works* program at the National Endowment for the Arts: Grant# 14-3800-7018

The opinions expressed in this paper are those of the authors and do not represent the views of the Office of Research & Analysis or the National Endowment for the Arts. The NEA does not guarantee the accuracy or completeness of the information included in this report and is not responsible for any consequence of its use.

ABSTRACT

This interdisciplinary research project investigates theatre as intervention for youth with autism (ASD). During the summer of 2014, 18 youth with autism and their nine non-ASD peers participated in a five-week long theatre conservatory program held in conjunction with the highly acclaimed The Miracle Project (TMP) by Elaine Hall and California State University, Northridge's Teenage Drama Workshop (TADW). It culminated in the creation and a total of five public performances of a new musical "Joining the Spectrum." This report delineates the outcomes of a multi-disciplinary research and data analysis based on pre-and posttest questionnaires and structured behavioral observations, inquiring into the potential impact of inclusive theatre on the lives of youth with an autism diagnosis and their families.

Victor Turner's theory of theatre as a liminal art is fortified by a few emerging literature on therapeutic theatre as well as TMP's inclusive theatre intervention for youth with ASD. Following the introduction and literature review, four specific dimensions of research are expounded. First, this study investigates the impact of participation in theatre on youth with autism, and the possibilities this participation might yield in generating personal and interpersonal transformations. Second, it examines the effects that youth participation in theatre has on the family members and caretakers of youth with autism. Third, the study explores the role that inclusive theatre experiences can play in creating compassion and understanding among non-ASD (or neurotypical) youth's increasing knowledge about autism and about themselves. Finally, the study examines the impact inclusive theatre performances can have on audience members. Each of these topics are investigated, in turn, by exploring impact of inclusive theatre experiences involving youth on the autism spectrum in collaboration with their non-ASD peers, in the development, rehearsal, and performance of theatrical productions. The conclusion summarizes result findings that positively affirm the impact of inclusive theatre experience on youth with ASD, neurotypical youth, families, and the audience.

EXECUTIVE SUMMARY

“Joining the Spectrum”: An Interdisciplinary Research Inquiry into Theatre as Intervention for Youth with the Autism Diagnosis (ASD) explores the transformative potential of theatre as a liminal art for youth with autism, neurotypical youth (NT), and their families and the audiences. Bringing together theatre practitioners and the university faculty as well as undergraduate and graduate student researchers from diverse disciplines such as theatre (co-PI), sociology (co-PI), child and adolescent development, recreation and tourism, this research project became an innovative multi-disciplinary collaboration work. The objective was to study systematic evidence-based outcomes documenting the effectiveness of theatre as a liminal art.

This research inquiry is framed by Victor Turner’s work on the notion of liminality (1967, 1969, 1977) in that theatre is an art that has considerable promise in understanding autism because it creates an environment of liminality. Theatre allows individuals a respite, or refuge, from their ordinary existence, and permits them to reside “betwixt and between” the thresholds of the mundane and the imaginary, between reality and possibility. As a multifarious and visceral performing art, theatre has been widely celebrated for its ability to facilitate liminal experiences, generating a social space where previously consolidated norms and hierarchies can be suspended, and are often inverted, creating opportunities for personal and collective change.

The emerging, though small, literature on the use of theatre as a therapeutic intervention for individuals with ASD (Corbett, et al., 2011; Corbett, et al., 2013) has also informed this study, which has been strengthened by the highly acclaimed work of Elaine Hall

(Hall and Isaacs, 2012) known as *The Miracle Project* (TMP). Conceived in 2004 in Los Angeles, TMP has been known for its successes in transforming the lives of individuals with ASD (See the Emmy Award winning HBO documentary “Autism: The Musical”). What sets TMP apart from a few existing theatre intervention programs is the idea of inclusion where the ASD individuals are encouraged to lead the non-ASD peers to “join” their world within the liminal context of theatre art. From June to July, 2014, a five-week intensive collaborative theatre conservatory was held in conjunction with the *Teenage Drama Workshop* (TADW) at the California State University, Northridge. With its 58 year history, TADW is the longest running summer theatre program in the United States which provides intensive theatre conservatory for youth between the ages 12-18. *The Miracle Project* and TADW collaborated for the first time by having their participants and staff joined together to support a common, theatrical conservatory.

Eighteen youth with ASD and their nine neurotypical peers participated in the production of a new musical called, *Joining the Spectrum: A Collaborative Play About Inclusion*. It was created in an inclusive setting in which the participating young adults were trained in acting, singing, dance, voice, playwriting, improvisation, musical theatre, and tech-design work. The *Joining the Spectrum: A Collaborative Play About Inclusion* was presented for a total of five public performances at California State University, Northridge.

In focusing this study, four sets of research questions are raised:

- 1) What is the impact of participation in theatre on youth with ASD? Specifically, how can participation in other youth with ASD? How does theatre affect a youth with ASD’s interpersonal and socialization skills?

- 2) How is the stress and day-to-day coping of family members and care-givers affected by youth with ASD who participate in theatre?
- 3) What is the effect of participation in an autism-related theatre program on neurotypical youth? Does it allow them to generate more compassion, empathy, and acceptance for themselves and others (particularly for teens with autism?)
- 4) How do audiences respond to inclusive youth theatre performances? How does it affect their perceptions of autism, and of the performing arts?

Throughout the entire project, researchers collected, analyzed, and drew conclusions based on their data drawn from the pre- and posttest questionnaires and structured behavioral observations. The methodological structure of this study primarily follows a quasi-experimental, non-equivalent groups design (NEGD), commonly adopted when the random assignment of individuals to experimental groups is not possible (Shadish, et al., 2002).

Research findings suggest that inclusive theatre experiences have important potential implications for improving the communication and socialization skills of young people with autism. Theatre can also have a significant and positive impact on youth with ASD and their self-esteem, empathetic abilities, and comfort with others; it also points to the potential for theatre to enhance levels of trust among young people with autism. These results are the most important implications of the study.

INTRODUCTION

This investigation is an interdisciplinary study bringing together scholars and practitioners from theatre and the social sciences to explore theatre as an intervention for teens with an autism spectrum diagnosis. It outlines the outcomes of an investigation supported by the National Endowment for the Arts, Research ArtWorks grant.

The use of theatre as an intervention has considerable promise in addressing the core deficits of individuals on the autism spectrum, namely those related to socialization and interpersonal interaction. Because theatre is a multifarious and interpersonal art form that involves the rehearsal process of coordinated interaction, it offers a promising avenue for increasing the interpersonal skills of youth with autism.

As anthropologist Victor Turner (1967, 1969, 1977) has suggested, theatre is unique in that it creates a social context that promotes “liminality.” In Turner’s terms, liminality allows individuals a respite, or perhaps a refuge, from their ordinary existence, and permits them to reside “betwixt and between” the thresholds of the mundane and the imaginary, between reality and possibility. As a performing art, theatre has been widely celebrated for its ability to facilitate liminal experiences, generating a social space where previously consolidated norms and hierarchies can be suspended, and are often inverted, creating opportunities for personal and collective change (Hughes and Wilson, 2004; Schechner and Appel, 1990).

The present study is framed by Turner’s work, by the power of theatre to create liminal experiences, and the transformative possibilities of theatre in improving the social skills of

individuals with an autism spectrum diagnosis. The approach taken in this study investigates four specific dimensions of theatre, as a liminal art, and its potential impact on the lives of youth with an autism diagnosis and their families. First, the study investigates the impact of participation in theatre on youth with autism, and the possibilities this participation might yield in generating personal and interpersonal transformations. Second, it examines the effects that youth participation in theatre has on the family members and caretakers of youth with autism. Third, the study explores the role that inclusive theatre experiences can play in creating compassion and understanding among youth who are “neurotypical” (those without an autism diagnosis), increasing knowledge about autism and about themselves. Finally, the study examines the impact inclusive theatre performances can have on audience members. Each of these topics are investigated, in turn, by exploring impact of inclusive theatre experiences involving youth on the autism spectrum in collaboration with their neurotypical peers, in the development, rehearsal, and performance of theatrical productions.

This study is also informed by the emerging, though small, literature on the use of theatre as a therapeutic intervention for individuals with ASD (for examples, see Corbett, et al., 2011; Corbett, et al., 2013). Specifically, this research is buttressed by the work of Elaine Hall (Hall and Isaacs, 2012) and her highly acclaimed theatre program for ASD individuals, *The Miracle Project*. While Hall’s work, and *The Miracle Project* in particular, has been hailed for its successes in treating individuals with ASD (it is the subject of the Emmy Award winning documentary “AUTISM: The Musical”), systematic evidence-based outcomes documenting its effectiveness are lacking. In short, not much is known about how, for whom, and in what ways, theatre-based interventions (like *The Miracle Project*) can provide a therapeutic environment

for ASD individuals. This research predicated on an innovative collaboration among researchers, *The Miracle Project*, and a youth theatre conservatory, *Teenage Drama Workshop (TADW)*, in order to examine theatre as a creative intervention for both youth with an ASD diagnosis, and for neurotypical youth (who understand autism with a lack of awareness and confusion).

The paper begins with an overview of the existing literature on theatre as an intervention for youth on the autism spectrum. Next, the methodological approach of this study is outlined. The results of the study are then presented followed by a discussion of their implications. Finally, a set of concluding remarks are presented followed by an overview of the limitations of the study.

THE RESEARCH QUESTIONS:

In focusing this study, four sets of research questions are raised:

- 1) What is the impact of participation in theatre on youth with ASD? Specifically, how can participation in other youth with ASD? How does theatre affect a youth with ASD's interpersonal and socialization skills?
- 2) How is the stress and day-to-day coping of family members and care-givers affected by youth with ASD who participate in theatre?
- 3) What is the effect of participation in an autism-related theatre program on neurotypical youth? Does it allow them to generate more compassion, empathy, and acceptance for themselves and others (particularly for teens with autism?)
- 4) How do audiences respond to inclusive youth theatre performances? How does it affect their perceptions of autism, and of the performing arts?

LITERATURE REVIEW

According to the U.S. Center for Disease Control, one in every 68 children is diagnosed with

autism in America – up from 1 in 10,000 children just 20 years ago (Blumberg, et al. 2013). Additionally, the cost of raising a child with special needs can be up to 6 times greater than that of raising a typically developing child (Peacock, et al., 2012; Shimabukuro, et al., 2008). Such socio-economic limitations create significant stressors, and isolation for families touched by autism (Dunn, et al., 2001; Mandell and Salzer, 2007; Woodgate, et al., 2008).

There are a number of social and economic barriers that constrain a family's ability to successfully receive support services for their children with autism. For example, families who live in lower-income communities have the fewest opportunities for specialized therapies needed for their children to access education and to promote social engagement (Bromley, et al., 2004; Mandell, et al. 2005). Affordable effective interventions are rare, and thus, families live in economic and social isolation as a result of having a child (or children) with autism or other developmental challenges (Sharpe and Baker, 2007).

This social isolation is compounded by cultural and psychological factors that facilitate a lack of understanding about autism, and resultant fear about autism and its implications (Farrugia, 2009; Gray, 2002). Because of limitations in community capacity and infrastructure to help build awareness about autism, there is an absence of opportunities for inclusive educational, social, and creative expression that engage youth with ASD, and provide support for their families. Young adults with autism have few opportunities to explore their creative and social engagement potential, and they have few chances to use these kinds of engagement to cultivate skills for future vocational opportunities. Creative interventions for autism, like those that involve theatre, provide an important, if not essential, opportunity for youth with ASD and

their families to receive innovative and affordable support services. Such alternative treatment methods may also provide greater insight into autism and the scope of effective, alternative therapies.

RESEARCH CONTEXT – *THE MIRACLE PROJECT & TEENAGE DRAMA WORKSHOP:*

The collaboration of two youth theatre programs, *The Miracle Project* and *Teenage Drama Workshop (TADW)* provide the context for this research study. As a point of collaboration, both *The Miracle Project* and *TADW* provide an excellent context for examining how theatre can be successful as an intervention for neurotypical youth, as well as youth with ASD and their families.

Conceived in Los Angeles in 2004, *The Miracle Project* is an innovative theater and socialization program for young people diagnosed with ASD. *TADW* is a summer theatre conservatory for young people 12-18 years old (an age group that parallels those of participants in *The Miracle Project*), that recently celebrated its 58th year, making it the longest running program of its kind in the United States.

In the context of this grant, the collaboration between *The Miracle Project* and *TADW* is the first time that participants and staff joined together to support a common, theatrical conservatory. The production of a new musical called, *Joining the Spectrum*, was created in an inclusive setting in which the participating young adults were trained in acting, dance, voice, playwriting, improvisation, musical theatre, and tech-design work. While creative and arts-based interventions have been implemented for youth with ASD (e.g. particularly art therapy,

see Evans and Dubowski, 2001), theatre-based interventions for autism, like that of *Joining the Spectrum*, are extremely rare.

As described by many practitioners of drama therapy (Emunah, 1994; Landy, 1994), theatre provides a context where individuals can suspend the structures and norms of taken-for-granted social identities and realities and create imaginative transformations of self, other, and situation. Theatre allows for the creation of a liminal space where identity can be manipulated, and everyday social interaction can be modeled such that individuals can adopt, experiment with, and master new, challenging, and even fantastic social roles—all without the anxieties of conventional social pressure. Theatre is also unique in that it is a visceral and multifarious art, where individuals are called upon to use the full range of their voices, bodies, minds, emotions, and senses. In theatre, individuals do not simply create something artistic; they perform art, and become art. Theatre allows individuals to engage in socialization and communication skills – two of the primary areas of deficit for ASD individuals (according to the DSM-5; see American Psychiatric Association, 2013) – where individuals can work toward the mastery of emotional awareness and display, interpersonal interaction, and empathetic role-taking. Finally, a theatre event creates a temporary community—both fictional (on stage) and real (between the performers and the audience members).

The Miracle Project is a particularly unique program for a study of inclusive theatre for youth. As an intervention for youth with ASD, *The Miracle Project* is based upon the premise that the most effective opportunities for the personal growth for youth with ASD emerge from an environment where they can establish peer relationships with neurotypical individuals (Hall

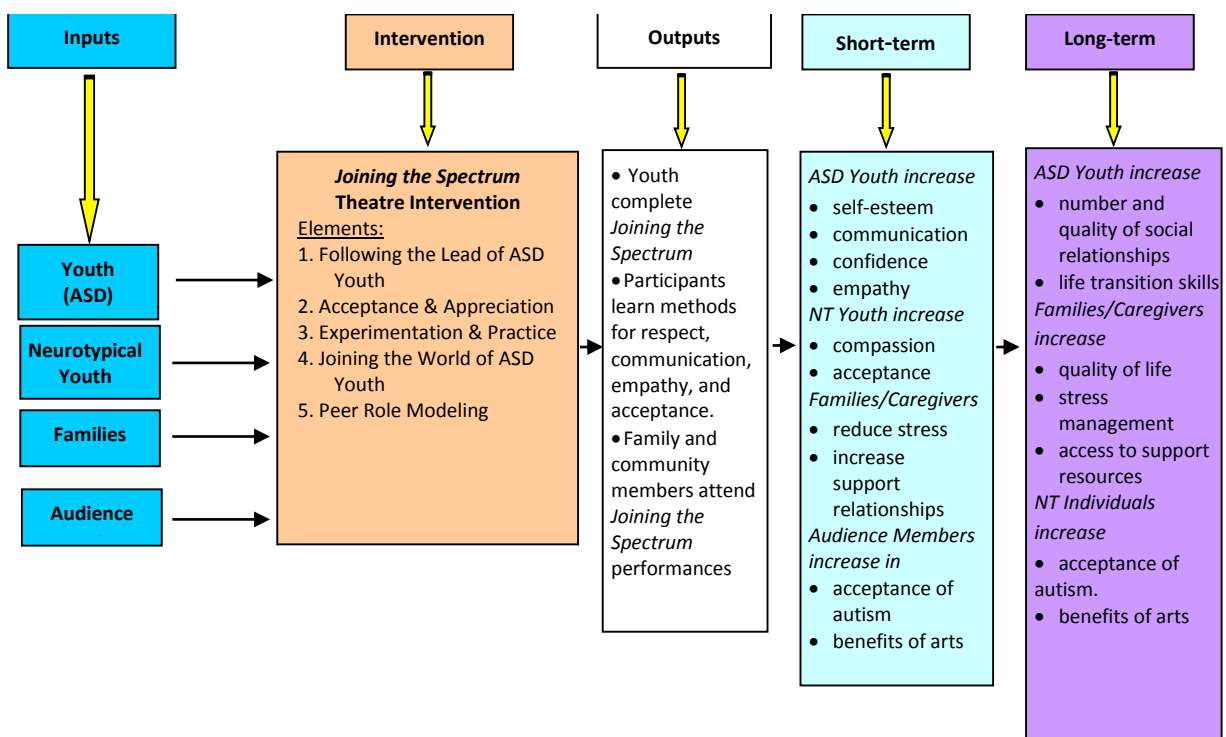
and Isaacs, 2011). Instead of teaching youth ASD to follow conventional behavioral expectations, *The Miracle Project* encourages neurotypical individuals to “join the world,” and thus follow the lead of youth with ASD, in the context of theatrical play, performance, and experimentation. This process allows neurotypical individuals to identify with, and often celebrate, the experiences of youth with ASD on their own terms, and to engage others with openness, compassion, and empathy. Additionally, youth with ASD are able to develop relationships with neurotypical peers, a process that has been widely documented in the research literature as having positive effects on the socialization and communication skills of ASD individuals (Deater-Deckard, 2001; Orsmond, et al., 2004). The intended outcomes of *The Miracle Project* are not only a renewed appreciation regarding autism among neurotypical individuals but, also, a growth in the socialization and communication abilities of youth with ASD, all cultivated through dramaturgical role-modeling, play, and experimentation.

The present study examines the outcomes of a theatrical conservatory established as a creative collaboration between *TADW* and *The Miracle Project*. As a result of their partnership, these programs developed a theatre arts program held on the campus of California State University, Northridge (CSUN) during the summer months (June and July) of 2014. They created a five-week intensive program called *Joining the Spectrum (JTS)*, where *TADW* and *The Miracle Project* participants and staff planned, scripted, rehearsed, and performed series of five public performances. All participating youth were enrolled in the *TADW* program. The methodology developed by Elaine Hall for *The Miracle Project* provided the pedagogical and creative framework for the *Joining the Spectrum* production, and was employed as a collaboration between staff and volunteers from *The Miracle Project* and *TADW*.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

A logic model for the study of *Joining the Spectrum* is outlined in Figure 1. Here, it is anticipated that both youth with autism and neurotypical youth will collaborate in a summer intensive conservatory. Following inclusive youth theatre model as an intervention for youth

Figure 1: Logic Model for *Joining the Spectrum* Study



with autism, neurotypical youth participants will develop skills for following the lead and “joining the world” of youth on the spectrum, cultivating an environment of mutual peer-role modeling, experimentation, and empathetic awareness. At the outset of the study, it was expected that an inclusive collaboration would create a specific set of short-term outcomes, each of which to be examined by this study. For example, if the program is effective, among youth with autism we would expect improvement to be found in their self-esteem,

relationships with others, and empathy. Similarly, among neurotypical participants we would expect that they would cultivate feelings of compassion for and acceptance of youth with autism and for autism-related concerns. In providing a supportive context for family members and caregivers of youth on the spectrum, it would be expected that the benefits the youth receive will serve to reduce the amount of family stress experienced by those who support them. Finally, we would expect that audience members attending the performances would generate greater awareness and acceptance for ASD individuals; these effects would also lead to an increased perception of the general benefits of participation in the arts. Long-term benefits of participation in *Joining the Spectrum*, though not specifically examined within the scope of this study, include increased social relationships and life transition skills for ASD youth, increased stress management and quality of life for their family members and caregivers, and increased community acceptance for and understanding of autism.

Following this conceptual model, ten hypotheses are examined in this study, pertaining to four participant groups – youth with ASD, neurotypical youth, family members/caregivers of youth on the spectrum, and audience members. These hypotheses are outlined in Table 1 below.

Table 1: Research Hypotheses

Youth with ASD:		
1)	<i>Self-Esteem Hypothesis:</i>	Youth with ASD who participate in a theatre intervention will show significant and positive changes in self-esteem.
2)	<i>Empathy Hypothesis:</i>	Youth with ASD who participate in a theatre intervention will show significant and positive changes in their ability to empathize with others.
3)	<i>Trust Hypothesis:</i>	Youth with ASD who participate in a theatre intervention will show significant and positive changes in their ability to trust others.
4)	<i>Comfort with Others Hypothesis:</i>	Youth with ASD who participate in a theatre intervention will show significant and positive changes in the comfort they experience with others.
5)	<i>Support from Others Hypothesis:</i>	Youth with ASD who participate in a theatre intervention will show significant and positive changes in the support they experience from others.
Families and Caregivers:		
6)	<i>Care-giving Stress Hypothesis:</i>	Families and caregivers of youth with ASD who participate in a theatre intervention will experience significant declines in their perceived levels of stress.
Neurotypical Youth Participants and Audience Members:		
7)	<i>Neurotypical Self-Esteem Hypothesis:</i>	Neurotypical youth who participate in a theatre intervention will show significant and positive changes in self-esteem.
8)	<i>Neurotypical Compassion Hypothesis:</i>	Neurotypical youth who participate in a theatre intervention will experience significant and positive increases their perceived levels of compassion for both self and others.
9)	<i>Neurotypical Acceptance Hypothesis:</i>	Neurotypical youth who participate in a theatre intervention will experience significant and positive increases their perceived levels of acceptance toward individuals with ASD.
10)	<i>Audience Acceptance Hypothesis:</i>	Audience members who view a theatre production featuring Youth with ASD will experience significant and positive levels of acceptance toward ASD individuals.

METHODOLOGY AND RESEARCH DESIGN

The methods, measures, and sampling criteria used in this study are outlined in the sections below.

METHODS:

The methodological structure of this study primarily follows a quasi-experimental, non-equivalent groups design (NEGD), commonly adopted when the random assignment of individuals to experimental groups is not possible (Shadish, et al., 2002). Pre-tests of research measures were administered to youth, and the families members/caregivers for youth with ASD approximately one week prior to their participation in *Joining the Spectrum*. Post-test measures were administered to youth, and the families members/caregivers for youth with ASD immediately after their participation in *Joining the Spectrum*. Research data from audience members was collected at the conclusion of each *Joining the Spectrum* performance.

Data for the study were collected using two primary methodologies – questionnaires and structured observations – and were drawn from five sources (1. ASD youth participating in *Joining the Spectrum*; 2. neurotypical youth participating in *Joining the Spectrum*; 3. family members/caregivers of ASD youth participating in *Joining the Spectrum*; 4. audience members attending *Joining the Spectrum* performances; 5. structured observations of *Joining the Spectrum* rehearsals and performances. The measurement of most variables in this study were accomplished using face-to-face, pre-test/post-test questionnaires. Specific efforts were made to work with aides of youth with ASD to insure that youth understood the questions posed; in some cases, youth responded to the questionnaires through tablet technologies or through the use of letter boards. All structured observations were made through participant observation during rehearsals and performances by trained research staff.

The first source of data collected during this study comes from questionnaires administered to youth with autism participating in *Joining the Spectrum*. This data is used to

examine Hypotheses #1-5. A second source of data collected during this study is gathered from neurotypical youth participating in *Joining the Spectrum* and is used to investigate Hypotheses #7-9. A third source of data is drawn from questionnaires administered to the families and caregivers of participating youth with autism, and is used to investigate Hypotheses #6. The fourth source of data is collected from audience members who attended the *Joining the Spectrum* performances, and is collected to examine Hypothesis #10. The final data source comes from structured, participant observations collected by a trained research team and is used to examine and triangulate Hypotheses #1-5.

MEASURES:

The primary concepts examined in this study are operationalized using items drawn from the scales, assessments, and inventories outlined in Table 2. Each of these measures has a history of use in social science and behavioral research and a record of demonstrated reliability and validity. In some cases for youth on the spectrum, scale items were modified for clarity and appropriateness (e.g. metaphoric language was eliminated, the number of words in an item was reduced, or negatively worded items were removed or rephrased). Table 2 presents a summary of the operationalization of the concepts used in this study.

Additionally, a modified version of the *Social Communication, Emotional Regulation, and Transactional Support Model (SCERTS)* was used to collect structured observations of youth with ASD during theatre rehearsals and performances. The SCERTS Model (Prizant, et al., 2006) is an innovative and established observational system for assessing and enhancing

Table 2: Operationalization of Concepts

Hypothesis	Concept(s) to be Tested	Operationalization
1)	<i>Self-Esteem</i>	<i>Rosenberg Self-Esteem Scale</i> is a ten item Likert scale inventory designed to assess self-reports of self-esteem (Rosenberg, 1965). Five items were used.
2)	<i>Empathy</i>	<i>Empathy/Systemizing Quotient (EQ-SQ, Child)</i> is a 55-item inventory (27 items measure trust) that has been developed to assess empathy (“theory of mind”) in young people diagnosed with autism (Auyeung, et al., 2009). Seven items were used.
3)	<i>Trust</i>	<i>Resiliency Scales for Children and Adolescents - Trust Subscale</i> , is a seven item scale that has been developed to assess trust in young people (Prince-Embury, 2007). Four items were used.
4)	<i>Comfort with Others</i>	<i>Resiliency Scales for Children and Adolescents - Comfort with Others Subscale</i> , is a four item scale that has been developed to assess trust in young people (Prince-Embury, 2007). Four items were used.
5)	<i>Support from Others</i>	<i>Resiliency Scales for Children and Adolescents - Support from Others Subscale</i> , is a seven item scale that has been developed to assess trust in young people (Prince-Embury, 2007). Three items were used.
6)	<i>Care-giving Stress</i>	The Parenting Stress Index–Short Form (PSI/SF) is a 36-item inventory that assesses feelings and experiences of parenting stress in parents of children and young people. Twenty-one items were used (Abidin, 1990).
7)	<i>Neurotypical Self-Esteem</i>	<i>Rosenberg Self-Esteem Scale</i> is a ten item Likert scale inventory designed to assess self-reports of self-esteem (Rosenberg, 1965).
8)	<i>Neurotypical Compassion</i>	<i>Compassionate Love of Close Others Scale</i> is a 21-item scale designed to measure feelings of compassionate love toward others. (Sprecher, S. & Fehr, B., 2005).
		<i>Self Compassion Scale</i> is a 26-item scale designed to measure an individual’s perception of self-compassion. (Neff, 2003)
9)	<i>Neurotypical Acceptance</i>	<i>Chedoke-McMaster Attitudes Towards Children with Handicaps Scale (CATCH)</i> is a 36-item inventory initially designed to measure attitudes toward children with disabilities, and is now commonly modified to assess acceptance toward young people with autism. (Rosenbaum, et al.,1986).
10)	<i>Audience Acceptance</i>	Items for audience questionnaires were developed by the researchers.

communication skills among youth with ASD. The model emphasizes three core domains: social communication, emotional regulation, and transactional support. While the SCERTS Model has primarily been used as a program for youth development in these three core areas, the research team adapted the model for use in making structured observations¹. In utilizing the SCERTS Model, three categories of growth areas were used: 1) Sense of Self; 2) Sense of Other;

¹ SCERTS developer and author Barry Prizant served as a consultant on the project and was consulted regarding the possibility of adapting the model for observational data collection purposes. Dr. Prizant’s consultation was invaluable, and any errors and/or limitations made in the adaption and use of the SCERTS Model belong entirely to the research team.

and 3) Group Engagement and Cooperation. The observational indicators for each area are presented below:

Sense of Self

- Removes self from over-stimulating or undesired activity.
- Expresses feelings of success or confidence during interactions.
- Demonstrates ability to inhibit actions and behaviors.
- Secures attention to one's self prior to expressing intentions.

Sense of Other

- Responds to bids for interaction.
- Prefers to be engaged with partners during unstructured play.
- Provides needed information based on knowledge of topic.
- Monitors attentional focus of a social partner.

Group Engagement and Cooperation

- Takes on a role and cooperates with peers in dramatic play.
- Plays in a common activity with other children.
- Persists during tasks (i.e., group activities) with reasonable demands.
- Maintains interaction by requesting (questioning) or providing relevant information.
- Responds to partners use of behavioral strategies (during group activities).

Consistent with the SCERTS Model, each growth area was observed and scored on a three-point scale (0 = Does not, or cannot, perform the behavior; 1 = Needs assistance; 2 = Independent). Each youth with ASD was observed five times on each item (once each week), for 30 minutes, during the five week theatre conservatory, and a total score for each observational area was computed by averaging the scores for each set of items during each week.

DATA ANALYSIS:

Data collected during this study was coded, compiled, and analyzed using the software Statistical Package for the Social Sciences, Version 22 (SPSS). Data was cleaned, de-identified and missing data treated through missing value analysis and replacement. Data analysis was accomplished in four steps:

- a) The first step was to examine differences between pre-test and post-test responses from participation groups.
- b) Next, measures of common factors were examined for reliability using inter-item reliability analysis (Cronbach's-alpha); similarly, the construct validity of these measures was assessed using confirmatory factor analysis.
- c) Based upon the results of reliability and validity analyses, composite measures (when applicable) were created in order to create the variables described in the study hypotheses.
- d) A series of comparative, non-parametric Wilcoxon signed rank tests were conducted in order to examine differences in pre-test and post-test outcomes along the variables outlined in the study hypotheses. Wilcoxon tests were used for these comparisons, instead of t-tests, because they are more conservative and are recommended for small sample size; thus, they best fit the relatively limited sample sizes of the data collected for this study. A probability value of 95% confidence ($p < 0.05$) was used as a measure of statistical significance.
- e) Data from structured observations were coded using the three-point SCERTS framework, checked for reliability, entered into SPSS, and matched with respective youth questionnaire data.

STUDY SAMPLE:

Youth study participants were recruited from those teens participating in the *Joining the Spectrum* theatre conservatory and include both youth with autism (N = 18) and neurotypical teens (N = 9). Parents and caregivers of youth with autism participating in *Joining the Spectrum*

were also recruited for the study (N = 15). Finally, adult audience (N=293) members attending *Joining the Spectrum* performances were also asked to complete short, anonymous performance evaluations.

RESULTS

Results of this study examine the questionnaire pre- and posttest differences among three participant groups: youth with ASD, neurotypical youth, and parents of youth with ASD. Additionally, the questionnaire results for youth with ASD are complemented with data collected through structured observations during rehearsals and performances. Finally, results from audience member questionnaires are also described. These results are presented in the discussion below. For each table of results mean scores for both pretest and posttest measures and presented, accompanied by their respective standard deviations (SD), and finally by the percent change between pre- and posttest responses (computed by subtracting the pretest score from the posttest score, dividing by the pretest score, and converting this decimal to a percentage). For items where there are statistically significant differences between pre- and posttest measures (with at least $p < 0.05$), the percent change is highlighted in yellow.

QUESTIONNAIRE RESULTS: YOUTH WITH AUTISM SPECTRUM DIAGNOSIS

Before participating in *Joining the Spectrum*, youth with ASD were asked a series of pretest questions related to their self-esteem, empathy, and resilience (trust, comfort with others, and support from others). These questions were complemented with posttest responses to the same items.

In responding to questions about their self-esteem, youth with ASD indicated moderately strong pretest levels of self-esteem. However, after their participation in *Joining the Spectrum*, these same youth reported a positive growth in self-esteem on every measure. On the sole negatively worded measure, “I tend to think that I am a failure,” these youth reported a change in responses between pre- and posttests in a negative direction, indicating a growth in self-esteem in a positive direction. As an example of these results, youth indicated significant and positive change in their perception of how happy they are with themselves, their perception of the number of good qualities they possess, and the respect they have for themselves. Both the increase in their perceived self-respect and the decrease in their tendency to see themselves as a failure yielded statistically significant results. These self-esteem results for youth with ASD are presented in Table 3.

Table 3: Youth with ASD Pretest/Posttest Results - Self-esteem

Self-Esteem	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
I am happy with myself	18	3.17	0.71	3.50	0.71	10.5
I have a number of good qualities	17	3.24	0.75	3.39	0.61	4.7
I am able to do things as well as most other people	18	3.28	0.46	3.35	0.49	2.3
I have respect for myself	18	2.89	0.96	3.39	0.70	17.3
I tend to think that I am a failure	17	2.18	0.95	1.71	1.05	-21.6

1 = Strongly Disagree, 4 = Strongly Agree

Participating youth with autism were also asked a set of questions related to empathy, drawn from the Empathy/Systemizing Quotient for children (Auyeung, et al, 2009). The results of their responses are presented in Table 4. As these results suggest, participation in the five-week, inclusive theatre conservatory produced a positive impact on youth with ASD related to their responses to nearly every item. For example, they reported positive changes in their

Table 4: Youth with ASD Pretest/Posttest Results - Empathy

Empathy	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
I really enjoy caring for other people	17	3.00	0.87	3.28	0.89	9.3
Seeing people cry doesn't really upset me	18	2.17	1.04	2.61	0.98	20.5
It upsets me to see an animal in pain	16	2.94	1.00	3.11	1.08	5.9
I get upset if I see people in pain on the news	18	2.50	1.04	2.83	1.25	13.3
I can tell if someone is hiding their true emotion	18	2.61	1.09	2.83	0.99	8.5
I am good at predicting what other people are thinking	18	2.94	0.73	2.83	0.79	-3.8

1 = Strongly Disagree, 4 = Strongly Agree

feelings about caring for other people, being upset at seeing an animal in pain, and their ability to tell if someone is hiding their emotions. They reported, with statistical significance, that they were less likely to be upset when seeing someone cry or in pain on the news; and this result can be interpreted not necessarily as a decline in empathetic ability but, perhaps, as a growth in their ability to understand another’s perspective through sympathetic analysis and interpretation without becoming emotionally engaged, skills often cultivated by actors in studying a character they will enact. Finally, overall these youth also reported a small decline in their ability to predict what others are thinking, though this result was not statistically significant.

Participating youth with autism were also asked a series of questions drawn from a well-known resiliency scale for adolescents (Prince-Embry, 2007) related to their relationships with others in three specific domains: trust, comfort with others, and the support they perceive from others. The results of their responses are presented in Tables 5-7 below. As these results suggest, after participating in *Joining the Spectrum* youth with autism indicated positive changes in their trust of others on every item (see Table 5). They reported that they were more

likely to like others, trust others, perceive they are treated well by others, and believe that people accept them for who they are.

Table 5: Youth with ASD Pretest/Posttest Results - Trust

Trust	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
I like people	18	4.11	1.13	4.39	0.78	6.8
Other people treat me well	18	3.89	1.08	4.06	1.06	4.3
I can trust others	17	3.47	1.37	3.78	0.88	8.9
People accept me for who I really am	18	3.83	1.04	4.17	0.92	8.7

1 = Never, 5 = Almost Always

In addition to increases in trust, youth with ASD also reported increases in their comfort being around others. As the results in Table 6 reveal, after participating in the five-week theatre

Table 6: Youth with ASD Pretest/Posttest Results – Comfort with Others

Comfort with Others	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
I feel calm with people	18	3.50	1.20	4.00	1.08	14.3
I can meet new people easily	18	3.33	1.14	4.22	1.00	26.7
I can make friends easily	18	3.94	1.21	4.17	0.71	5.6
People like me	18	4.11	0.90	4.44	0.62	8.1

1 = Never, 5 = Almost Always

conservatory these youth indicated increased beliefs that people liked them, that they could make friends easily, meet new people easily, and feel calm around others (with these last two items having statistically significant increases).

While youth with ASD reported positive increases in both their trust of and comfort with other people, their responses were more muted relative to their perceptions of the support they

receive from others. As shown in Table 7, after participating in *Joining the Spectrum*, these young people reported that they were generally less likely to feel support from others. While

Table 7: Youth with ASD Pretest/Posttest Results – Support from Others

Support from Others	N	Pre		Post		%
		Mean	SD	Mean	SD	Change
I have a good friend	18	4.22	1.06	4.39	1.04	3.9
There are people who will help me if something bad happens	18	4.33	1.03	3.83	1.20	-11.5
There are people who care about me	18	4.50	1.04	4.44	1.04	-1.2

1 = Never, 5 = Almost Always

they did indicate that they were more likely to feel they had a good friend, after their participation in the conservatory they were also slightly less likely to believe that there were people who cared about them, and significantly less likely to report that others were available to help them if something bad happened.

Composite measures were computed for each of the measures in the key areas discussed above (e.g. self-esteem, empathy, trust, comfort with others, and support from others). Reliability estimates (Cronbach’s-alpha) and confirmatory factor analyses were utilized to assess the reliability and validity of each factor. These estimates confirmed the reliability and validity of measures related to empathy, comfort with others, and support from others; in the cases of self-esteem and trust, one item was removed to increase the reliability and validity of the composite measure to a satisfactory level.²

² alpha > 0.7 and only one factor with an eigen-value above 1.0.

The results of pre- and posttest comparisons yield some notable and statistically significant results. Overall, youth with ASD report statistically significant increases in the areas of self-esteem, empathy, and comfort with others; they also report notable increases in trust of others (though this result was not found to be statistically significant). In contrast to these positive results, these youth also report declines in their perception of the support they receive from others, although this result was not found to be statistically significant. These results are presented in Table 8.

Table 8: Youth with ASD Pretest/Posttest Results – Composite Measures

Composite Measures	Pre		Post		% Change	Sig.
	Mean	SD	Mean	SD		
Self-esteem	3.25	0.64	3.64	0.60	12.0	0.003
Empathy	2.68	0.83	2.98	0.84	11.4	0.031
Comfort with others	3.72	0.83	4.21	0.63	13.1	0.036
Trust	3.82	0.90	4.10	0.70	7.3	0.197
Support	4.35	0.81	4.22	0.86	-3.0	0.574

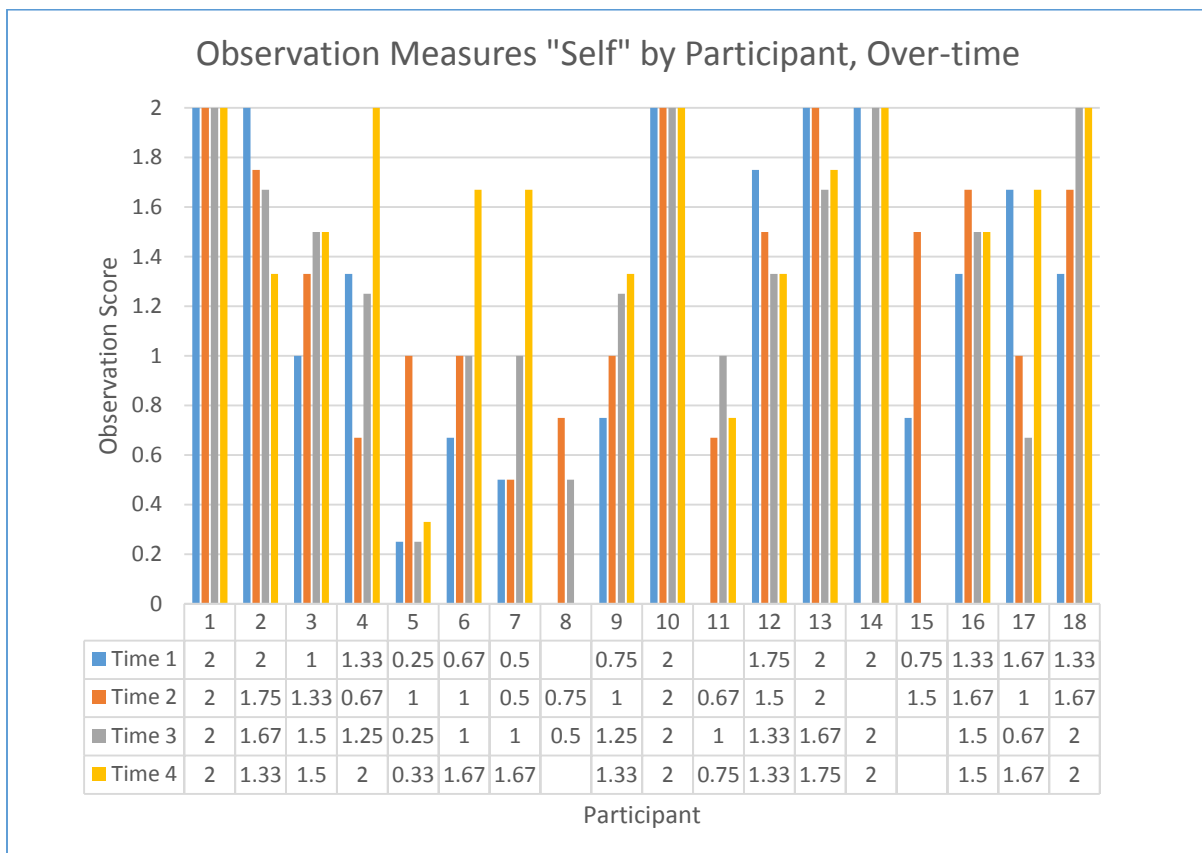
OBSERVATION RESULTS: YOUTH WITH AUTISM SPECTRUM DIAGNOSIS

To complement the pre- and posttest questionnaire data, structured observations were made during the process of *Joining the Spectrum* rehearsals and performances. These observations were intended to complement data collected through questionnaire self-reports in areas related to sense of self, sense of others, and engagement in group and cooperative activities. While five observations were made, the fifth was conducted during the *Joining the Spectrum* performances themselves (which occurred during the fifth week of the conservatory). Because the context for this observation was unique, and different than that of the rehearsal

observations, only the four rehearsal observations are reported in this discussion. The results of these observations are presented in Figures 2 – 5.

Figure 2 depicts the average “Sense of Self” observations for each of the 18 youth across the four weeks of rehearsal, with one observation occurring each week (Times #1 – 4). As illustrated in this figure, the general tendency is for youth to increase or maintain their ability to cultivate an increased sense of self during the course of the rehearsals. In some cases, the

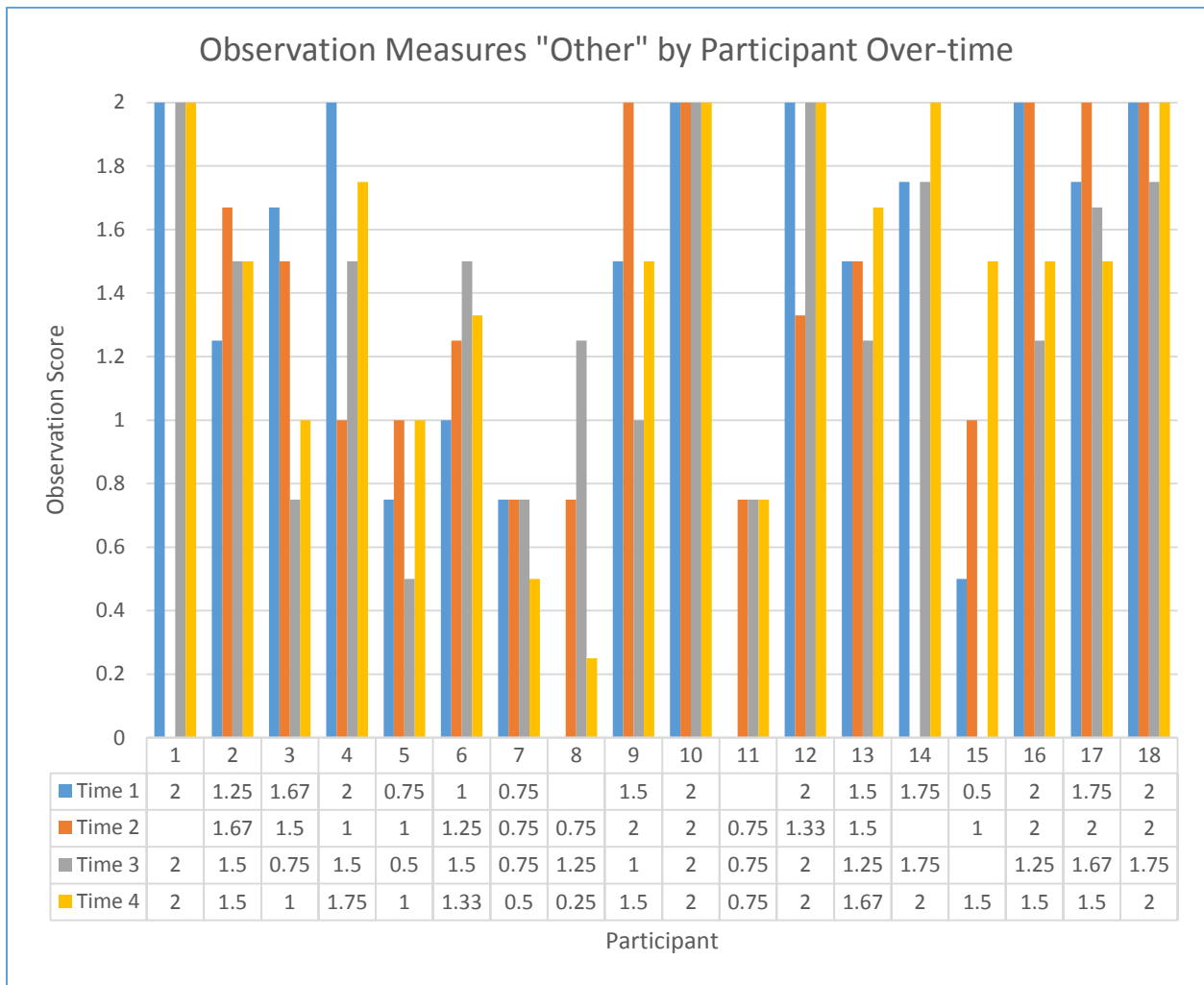
Figure 2: Sense of Self Observations



growth in sense of self is dramatic, as reflected in the change over time of Participants # 3, 4, 6, 7, 9, and 18. These increases in sense of self reflect, are consistent with, and support the increases in self-esteem reported by youth in their questionnaire reports.

Like the results for sense of self, observational data for “Sense of Other” also illustrates growth for some youth with ASD during the course of their *Joining the Spectrum* participation, although these results are found to be more inconsistent. As depicted in Figure 4, Participants #2, 5, 6, 13 & 15 demonstrated overall increases in their sense of others during the

Figure 3: Sense of Other Observations

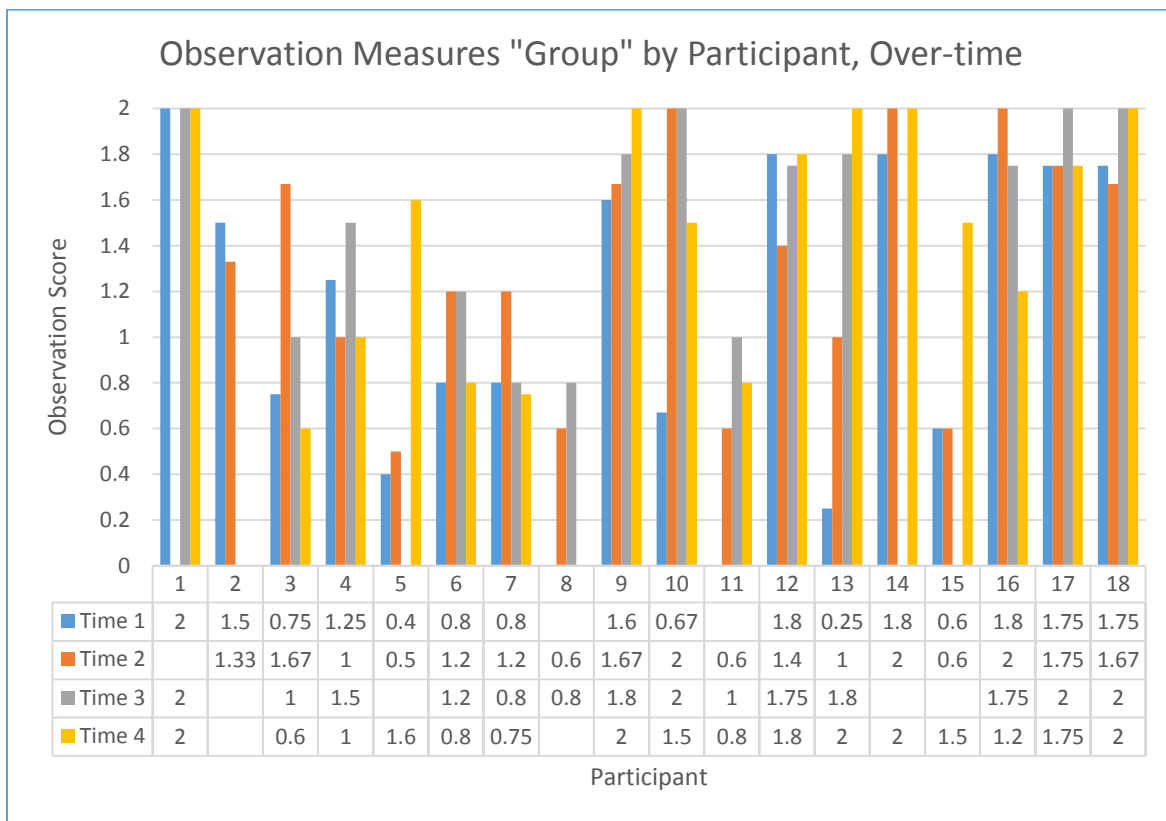


course of the conservatory. However, a parallel number of youth (Participants #3, 4, 7, 8, 9, 16 & 17) were observed to decrease in their sense of others during their rehearsal experiences.

These more inconsistent results also reflect those of the youth’s questionnaire reports of slight decreases in perceptions of support from others.

Finally, the observational data for Group Engagement and Cooperation are illustrated in Figure 4. These data suggest generally positive increases in youth group engagement during the course of *Joining the Spectrum*. For example, overall positive growth in group engagement is seen by Participants #5, 9, 10, 11, 13, 14, 15, & 18, with very few instances of overall declines.

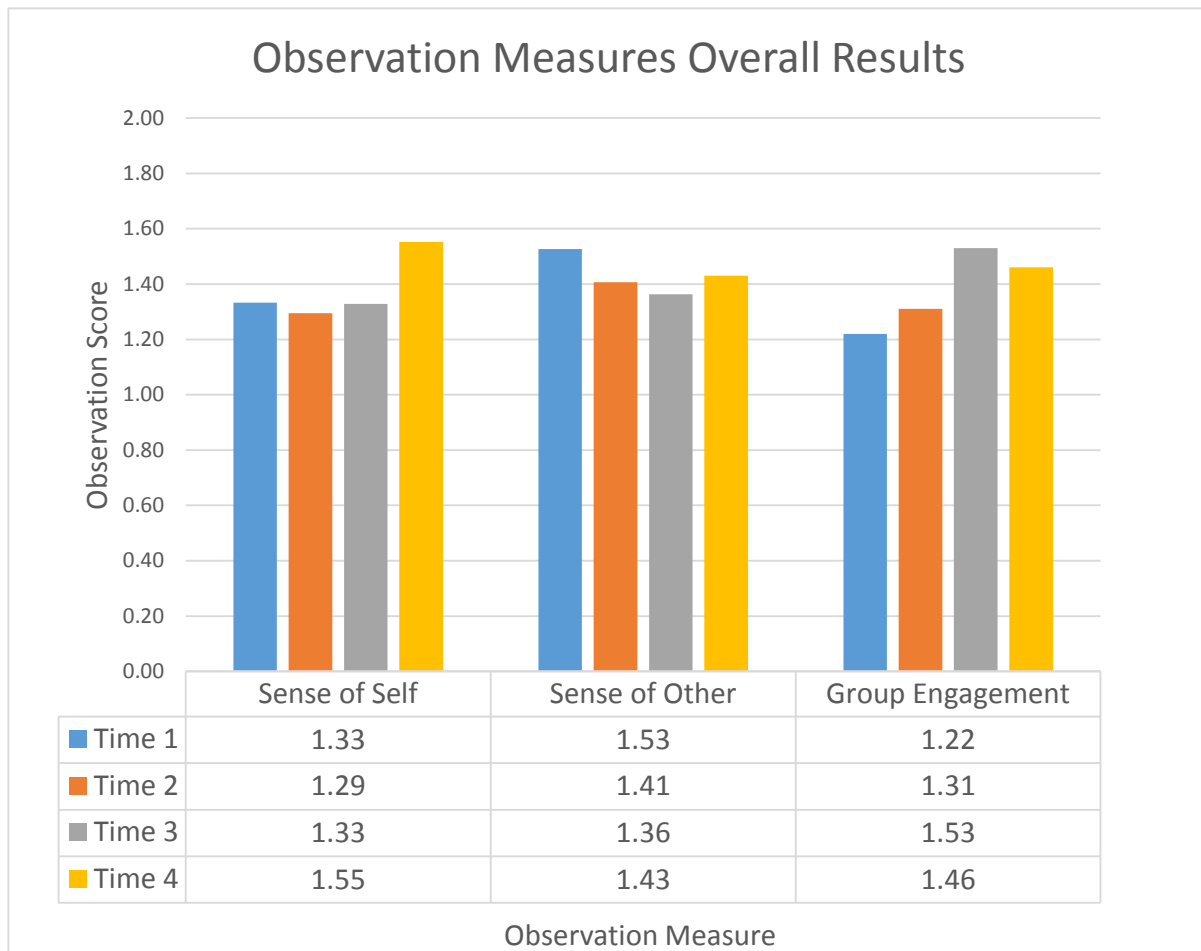
Figure 4: Group Engagement Observations



Overall, these results parallel and provide support for the questionnaire data indicating positive growth in both comfort with others and in trust of others.

The overall results of the observational data are summarized in Figure 5. As these results clearly illustrate, the observational data suggests that, overall, through the course of their participation in *Joining the Spectrum*, youth with ASD demonstrate notable increases in sense of self and group engagement, with more muted and slight declines in their sense of other.

Figure 5: Overall Observation Results



QUESTIONNAIRE RESULTS: NEUROTYPICAL YOUTH

Like the youth with ASD, before they began the participation in *Joining the Spectrum*, neurotypical (NT) youth were asked a series of pretest questions related to their self-esteem,

self-compassion, compassion for others, and their understanding and acceptance of autism.

These questions were complemented with posttest responses to the same items at the end of the conservatory.³

In responding to questions about their self-esteem, NT youth indicated moderately strong pretest levels of self-esteem. However, after their participation in *Joining the Spectrum*, these same youth reported somewhat mixed results related to changes in self-esteem. On some measures, (e.g. able to do things as well as others, having a positive attitude toward self, etc.), these youth reported slightly positive increases in their self-esteem. However, on other measures, these youth indicated decreases over time in self-esteem (e.g. greater tendencies to believe they are a failure; and decreased tendencies to have respect for themselves and to think of themselves as a person of value). While these self-esteem results are mixed, there are no statistically significant changes in the pre- and posttest reports for NT youth related to self-esteem. These results for NT youth are presented in Table 8.

³ Due to a lack of statistical significance in the general questionnaire results for NT youth, no composite measures are created and tested in this analysis.

Table 8: NT Youth Pretest/Posttest Results - Self-esteem

Self-Esteem	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
I am happy with myself	9	3.22	0.44	3.22	0.44	0.0
I have a number of good qualities	9	3.22	0.44	3.22	0.44	0.0
At times, I think I am no good.	9	3.00	0.50	3.00	0.50	0.0
I am able to do things as well as most other people.	9	3.11	0.60	3.33	0.71	7.1
I do not have much to be proud of.	9	1.67	0.50	1.56	0.53	-6.7
I think I am useless at times.	9	2.67	0.87	2.67	0.71	0.0
I am a person of value.	8	3.50	0.53	3.13	0.64	-10.7
I have respect for myself.	8	3.52	0.52	3.25	0.71	-7.7
I tend to think that I am a failure.	9	1.87	0.83	2.00	0.71	7.0
I have a positive attitude of myself.	8	3.18	0.52	3.38	0.52	6.1

1 = Strongly Disagree, 4 = Strongly Agree

In addition to questions about self-esteem, NT youth were also asked to respond to a set of items about self-compassion drawn from Neff (2003). These questions served to gauge changes over-time in their ability to be compassionate toward themselves as a result of participating in *Joining the Spectrum*. As shown in Table 9, NT youth expressed very modest changes in their perceived ability to express and enact self-compassion. Their capabilities were most likely to change in a more self-compassionate direction in areas like being judgmental about their own flaws, being more caring toward themselves, and being less likely to get down on themselves. However, these youth also expressed decreases in self-compassion in areas like: impatience toward parts of their personality they do not like, being increasingly unkind toward themselves when experiencing suffering, and being less kind to themselves when suffering. It is important to note that these decreases in self-compassion after participating in *Joining the Spectrum* do not necessary indicate decreases in self-compassionate ability or behavior; instead, they may also suggest increases in their awareness of their lack of self-compassion, a more positive skill of self-reflexivity.

Table 9: NT Youth Pretest/Posttest Results - Self-compassion

NT Self-Compassion	N	Pre		Post		%
		Mean	SD	Mean	SD	Change
I can be overly judgmental about my own flaws.	9	3.44	1.01	3.11	0.78	-9.7
I try to be caring towards myself when I'm feeling emotional pain.	9	3.11	0.93	3.44	0.73	10.7
When times are really difficult, I tend to be tough on myself.	7	3.67	1.00	3.67	0.87	0.0
I'm impatient towards those aspects of my personality I don't like.	9	2.71	0.76	2.86	1.07	5.3
When I'm going through a very hard time, I give myself the care I need.	9	3.44	1.01	3.33	0.87	-3.2
When I see aspects of myself that I don't like, I get down on myself.	9	3.00	1.12	2.67	1.12	-11.1
I'm kind to myself when I'm experiencing suffering.	9	3.44	1.01	3.22	0.67	-6.5
I can be a bit unkind towards myself when I'm experiencing suffering.	9	2.67	0.87	3.00	0.87	12.5
I can accept my own flaws.	8	3.25	1.58	3.25	1.49	0.0
I try to be patient with those aspects of my personality I don't like.	8	3.75	0.89	3.63	1.06	-3.3

1 = Almost Never, 5 = Almost Always

Parallel to questions related to self-compassion, NT youth were also asked to reflect on their compassion toward others (Sprecher and Fehr, 2005) both before and after their participation in *Joining the Spectrum*. The results of the inquiries suggest, overall, very little change in NT youth’s compassionate attitudes toward others (see Table 10). However, there is one notable and statistically significant exception to these more taciturn results in the direction of increased compassion for others – after participating in *Joining the Spectrum*, these young people were much more likely to report that they like to spend time with people they don’t know so they can help them. However, given this strongly positive response, these same youth were also less likely to report they feel considerable kindness for those of all abilities, feel happy when others are happy, and less inclined to be kind and good to others, although none of these results reached statistical significance.

Table 10: NT Youth Pretest/Posttest Results – Compassion for Others

NT Compassion for Others	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
When I see people I do not know feeling sad, I feel a need to help them.	9	3.78	0.97	3.78	0.83	0.0
I spend a lot of time concerned about the well-being of other people.	9	3.67	0.87	3.67	0.71	0.0
When I hear about someone going through a difficult time, I feel a great deal of kindness for him or her.	9	4.11	0.60	4.22	0.67	2.7
It is easy for me to feel the pain experienced by others, even when I do not know them.	9	3.89	0.78	3.78	0.97	-2.9
If I encounter a person who needs help, I would do almost anything I could to help him or her.	9	3.67	1.00	3.67	1.00	0.0
I feel considerable kindness for people of all abilities.	8	4.63	0.52	4.13	0.64	-10.8
I would rather suffer myself than see someone else suffer.	8	3.75	0.89	3.88	0.64	3.3
I am willing to give something up in order to let people who are less fortunate than me be happy.	8	4.13	0.83	3.88	0.99	-6.1
I tend to feel kindness for people even though I do not know them.	9	4.11	0.33	4.11	0.60	0.0
It is important to me to help others in the world who need help.	9	3.89	0.78	4.11	0.93	5.7
I often have kind feelings toward people when they seem to be in need.	8	4.11	0.78	4.00	0.50	-2.7
I feel a selfless caring for most of humankind.	9	3.38	0.92	3.38	1.30	0.0
I accept others even when they do things I think are wrong.	9	3.33	0.87	3.44	0.88	3.3
If a person is troubled, I usually feel extreme caring for them.	9	3.89	0.78	3.89	0.60	0.0
I try to understand rather than judge people who I don't know.	9	3.89	0.60	4.11	0.93	5.7
I try to put myself in another person's shoes when he or she is in trouble.	9	3.89	0.78	4.00	0.50	2.9
I feel happy when I see that others are happy.	9	4.44	0.88	4.00	1.00	-10.0
People I know can assume that I will be there for them if they need me.	9	4.33	0.87	4.11	1.17	-5.1
I like to spend time with people I don't know well so that I can help them.	9	3.00	0.71	3.67	0.87	22.2
I very much wish to be kind and good to fellow human beings.	9	4.89	0.33	4.44	0.73	-9.1

1 = Not at all True, 5 = Very True

NT youth were also asked to respond to a series of questions about their understanding, acceptance, and attitudes toward young people with autism. These questions were drawn from the CATCH scale (Rosenbaum, 1986) and examined affective, behavioral, and cognitive attitudes toward youth with autism. The results of these inquiries are reported in Tables 11-13.

Table 11 outlines the affective dimensions NT youth held toward youth with autism and how these attitudes changed through time. After participating in *Joining the Spectrum*, these

youth were significantly more likely to report that they knew someone with autism, and had spent considerable time with a person with autism. Additionally, and with statistical

Table 11: NT Youth Pretest/Posttest Results – Affective Attitudes toward Autism

Affective Attitudes toward Autism	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
I know someone with autism.	9	3.44	1.42	4.67	0.50	35.5
I have spent a lot of time with a person with autism.	9	2.89	1.27	4.22	0.83	46.2
I feel sorry for people with autism.	9	3.00	0.87	3.00	1.22	0.0
I feel uncomfortable when I see a young person with autism.	9	1.89	0.93	1.89	0.93	0.0
I would not know what to say to a young person with autism.	9	2.33	1.32	2.00	1.00	-14.3
I know what autism is.	9	4.00	0.50	3.89	0.78	-2.8
I have a family member with autism.	9	2.44	1.01	2.22	1.20	-9.1
I have a friend who has autism.	9	3.11	1.27	3.89	1.27	25.0

significance, they were also less likely to say that they would not know what to say to young person with autism, and more likely to report that they had a friend with autism.

When reflecting on their more behavioral attitudes toward youth with autism, NT youth also expressed generally positive attitudes. For example, and as illustrated in Table 12, after participating in the theatre conservatory, NT youth indicated that they were more likely to be pleased if they were invited to the home of a young person with autism, to be less likely to worry if a young person with autism sat next to them, and to be less afraid of a young person with autism. However, NT youth also reported being more likely to stay away from a person with autism, and to be embarrassed as a result of being invited to the birthday party of a young

person with autism (although in all cases, NT youth indicated a consistent tendency to “disagree” with each of these statements).

Table 12: NT Youth Pretest/Posttest Results – Behavioral Attitudes toward Autism

Behavioral Attitudes toward Autism <i>When I think of young people with autism I would ...</i>	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
stick up for them if they were being teased.	9	4.44	0.53	4.44	0.53	0.0
invite them to one of my parties.	9	4.11	0.93	4.11	0.78	0.0
be afraid of them.	9	1.67	0.50	1.56	0.73	-7.1
talk to them, even if I didn't know them.	9	3.67	0.71	3.89	0.60	5.7
like having them live next door to me.	9	3.89	0.33	4.11	0.78	5.4
be happy to have them as a friend.	9	4.11	0.60	4.44	0.53	7.5
try to stay away from them.	9	1.44	0.53	1.67	0.71	13.3
be pleased if they invited me to his/her house.	9	3.78	0.67	4.11	0.60	8.1
feel good doing a school project with them.	9	4.11	0.60	4.22	0.44	2.6
be embarrassed if they invited me to his/her birthday party.	9	1.67	1.00	1.89	0.93	11.8
tell my secrets to them.	9	3.22	0.67	3.33	1.00	3.3
enjoy being around them.	9	4.11	0.60	4.33	0.50	5.1
worry if they sat next to me in class.	9	1.78	0.71	1.67	0.71	-6.7
introduce them to any of my friends.	9	4.11	0.50	4.33	0.50	5.1
like a friend with autism as much as my other friends.	9	4.56	0.71	4.33	0.71	-5.1

1 = Strongly Disagree, 5 = Strongly Agree

In addition, NT youth were asked to respond to a series of questions regarding their cognitive attitudes toward youth with autism. Examples of these questions can be found in Table 13. While these cognitive attitude results are somewhat less dramatic than those found in the other two attitudinal domains, there are several notable pre- to posttest changes to report. After participating in *Joining the Spectrum*, NT youth were more likely to believe that young people on the spectrum can do many things for themselves. Additionally, though without statistical significance, these youth were also likely to report decreases in their attitude that

youth with autism are often sad and feel sorry for themselves, do not like to make friends, and want lots of attention from adults.

Table 13: NT Youth Pretest/Posttest Results – Cognitive Attitudes toward Autism

Cognitive Attitudes toward Autism <i>Young people with autism ...</i>	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
can do lots of things for themselves.	23	3.67	0.71	3.89	1.05	6.1
like to have fun.	23	4.33	0.50	4.44	0.53	2.6
want lots of attention from adults.	23	3.22	0.83	3.00	0.71	-6.9
don't like to make friends.	23	2.00	0.50	1.67	0.71	-16.7
feel sorry for themselves.	23	2.33	0.87	2.11	0.93	-9.5
are as happy as I am.	23	3.89	0.93	3.89	0.78	0.0
know how to behave properly.	23	3.44	0.73	3.56	0.88	3.2
don't have much fun.	23	1.78	0.44	1.78	0.67	0.0
are interested in lots of things.	23	4.33	0.50	4.33	0.50	0.0
are often sad.	23	2.44	0.73	2.11	1.05	-13.6
can make new friends.	22	4.38	0.52	4.38	0.52	0.0
need lots of help to do things.	23	2.78	0.97	2.67	0.87	-4.0

1 = Strongly Disagree, 5 = Strongly Agree

Finally, at the conclusion of the theatre conservatory, and only on the posttest, NT youth were given a set of questions that asked them to reflect on their general experiences during *Joining the Spectrum*. While the results reported above for changes in self-esteem, self-compassion, compassion toward others, and attitudes toward youth with autism reflect a more modest impact of the experience of the conservatory, these more general questions highlight the strong experiences that many NT youth had while participating in *Joining the Spectrum*. Table 14 outlines these results. As illustrated in this table, among NT youth there was nearly universal agreement that participation in *Joining the Spectrum* was a positive experience.

Table 14: NT Youth Posttest Results – Overall Reflections

When thinking about my experience with JTS, I think ...	N	Mean	SD
It has helped me better understand autism.	9	4.70	0.48
Theatre can help audiences better understand autism.	9	3.90	0.74
Young people can benefit from participation in theatre.	9	3.90	0.88
Theatre can help build community.	9	4.60	0.52
I want to be more involved in the performing arts.	9	4.60	0.70
Performing in theatre can help people with autism.	9	4.40	0.70
I have made some new, life-long friends.	9	4.60	0.70
I have really enjoyed my experience.	9	4.40	0.52

1 = Strongly Disagree, 5 = Strongly Agree

For example, these youth reported with strong agreement that their experience with *Joining the Spectrum* had helped them better understand autism, could help theatre audiences better understand autism, and that performing in theatre could help those with autism. They also agreed that young people can benefit from theatre, their experience made them want to be more involved in the performing arts, and theatre can help to build community. They also strongly agreed that they had made some new, life-long friends and had really enjoyed their experiences.

Perhaps the most striking reports of NT youth experience in *Joining the Spectrum* come from narrative reports that they provided on the questionnaire in response to an open-ended question about the impact their experience had on them. While many of these youth reported that they “had made lots of new friends” and learned “lots of things about autism,” some went into great detail about how their experience had affected them. For example, Simon⁴ described how he had learned to better understand autism, writing that:

I believe JTS has made a positive experience on me for many reasons. First of all, it has helped me better understand autism. Also, I had an amazing experience

⁴ All individual names used in this report are pseudonyms and not the participant’s real names.

with kids with autism and it helped me understand that kids with autism aren't that different from everybody else. They just have different challenges.

Similarly, Paulo described what he learned about autism:

I think JTS has taught me not only about how people with autism are, but to realize that people with autism can do anything I could do, when before I always thought to treat people with autism like anybody else but I don't know if I actually did, now I know that I will.

Finally, Margaret wrote in some detail on her experiences and the sense of community and love that the experience engendered:

I have really enjoyed participating in Joining the Spectrum. Working with these kids hasn't been very different than other theater productions. They are just as talented and entertaining and have a lot of fun. There is actually less drama in this drama space than other productions that I've been in because everyone is open and honest about their feelings and everyone gets along pretty well. I walk into rehearsal and I feel love coming from everyone. I know there isn't gossip or any angsty teenager going on. I also want to give credit to all the adults for being so willing to listen to people's needs and have them addressed. I feel like this experience has taught me that love and acceptance and understanding can overcome any obstacle.

Overall, these narrative responses provide a strong testament to both the positive impact that participation in *Joining the Spectrum* had on NT youth and, also, the potency of theatre to shape perspectives and attitudes, and create transformative experiences.

QUESTIONNAIRE RESULTS: PARENTS / CAREGIVERS

It was anticipated that as a result of youth participation in *Joining the Spectrum*, stress might be reduced for parents and/or caregivers of youth with autism. To examine this possibility, parents (only parents, and no caregivers, responded to the questionnaire) of youth with autism were queried regarding their levels of parenting stress. A series of questions drawn from the

Parenting Stress Index, Short Form were asked of parents both before the start of *Joining the Spectrum*, and again at its conclusion. The results of parent responses are presented in Table 15. As these results suggest, there was no statistically significant change in responses to any of the items measuring parenting stress, and very little change between pre- and posttest measures. Some areas in which there was a slight but noteworthy change include increased perceptions of a parent's capacity to try new and different things since having a child, and feeling their child appreciates them; decreased perceptions of failing to enjoy things, feeling alone and without friends, feeling trapped in parental responsibilities, and feeling that their child does not learn as quickly as other children. However, overall there was only a modest impact on perceptions of parenting stress as a result of youth participation in the theatre conservatory.

Table 15: Parent Pretest/Posttest Results – Parenting Stress

Parenting Stress <i>Please tell us how much you disagree or agree that...</i>	N	Pre		Post		% Change
		Mean	SD	Mean	SD	
I often have the feeling that I cannot handle things very well.	13	3.00	1.15	2.92	1.32	-2.6
I find myself giving up more of my life to meet my child's needs than I ever expected.	13	4.31	0.63	4.31	0.63	0.0
I feel trapped by my responsibilities as a parent.	12	2.83	1.34	2.67	1.30	-5.9
since having my child I have been able to try many new and different things.	13	2.38	1.12	2.69	1.11	12.9
since having my child I feel that I am frequently able to do things that I like to do.	13	2.54	1.05	2.62	1.04	3.0
I feel alone and without friends.	13	2.62	1.26	2.38	1.19	-8.8
I am not as interested in people as I used to be.	13	2.85	1.21	3.00	1.22	5.4
I don't enjoy things as I used to.	12	2.83	1.24	2.58	1.24	-8.8
sometimes my child does things that bother me just to be mean.	13	1.92	1.08	2.00	1.08	4.0
most times I feel like my child wants to be close to me.	12	4.00	0.90	4.08	0.90	2.1
my child does things for me that make me feel good.	13	4.23	0.73	4.15	0.80	-1.8
most times I feel that my child likes me.	13	4.62	0.65	4.38	0.87	-5.0
my child smiles at me much less than I expected	13	2.15	1.21	2.38	1.45	10.7
when I do things for my child, I get the feeling that my efforts are very much appreciated.	13	3.38	1.12	3.62	1.19	6.8
when playing, my child doesn't often giggle or laugh.	12	2.17	1.19	2.25	1.29	3.8
my child doesn't seem to learn as much as most children.	13	2.85	1.34	2.54	1.45	-10.8
my child doesn't seem to smile as much as most children.	13	2.38	1.56	2.46	1.45	3.2
my child is not able to do as much as I expected.	13	3.08	0.95	2.92	1.32	-5.1
it is really easy for my child to get used to new things.	13	2.54	0.97	2.38	0.87	-6.1
I expected to have closer and warmer feelings for my child than I do and this bothers me.	12	1.67	0.98	1.67	1.15	0.0
sometimes my child does things just to be nice to me.	13	3.77	0.93	3.54	0.88	-6.1

1 = Strongly Disagree, 5 = Strongly Agree

QUESTIONNAIRE RESULTS: AUDIENCE MEMBERS

Audience members of *Joining the Spectrum* performances were a final group from which research data was collected. At the end of each performance, each adult audience member was invited to complete a brief questionnaire to reflect on their experience during and impact of

the performance on their attitudes toward both theatre and autism. The results of audience responses are presented in Table 16. These results suggest that the impact of the *Joining the*

Table 16: Audience Responses – Overall Reflections

As a result of experience the <i>Joining the Spectrum</i> performance, I think ...	N	Mean	SD
I know more about Autism.	271	3.95	1.19
Theater can help people better understand Autism.	273	4.58	0.91
Young people can benefit from participation in theater.	275	4.75	0.85
Theater can help build community.	275	4.73	0.85
I want to be more involved in the performing arts.	268	4.09	1.41
Performing in theater can help people with Autism.	274	4.70	0.88

1 = Strongly Disagree, 5 = Strongly Agree

Spectrum performances on audience members was overwhelmingly positive. On every item, audience members tended to “Agree” or “Strongly Agree” that they had learned something about autism; that theatre can help people understand autism; that theatre can help people with autism; and that young people in general can benefit from participation in theatre. Additionally, audience members also reported that they agreed that viewing the performance encouraged them to become more involved in the performing arts, and strongly agreed that theatre can help to build community.

These overwhelmingly positive audience responses to the questionnaire items were reinforced by open-ended, written narrative comments about the performance. These comments reflect the joy, beauty and emotional evocation experienced by many of the audience members, and the overall degree to which they were emotionally moved by the performance. Examples of some of these comments are presented below:

It has been quite an experience. It will help me to understand more the persons who suffer with autism.

Beautiful Message! An amazing opportunity for children/teens young adults both on and off the spectrum to join together to build a supportive community. I hope my teen daughter can participate in this program next summer!

This was wonderful! I love the inclusion, the friendships, and the production. What a great way to get ASD involved in a social setting, learning and applying all the skills they've been taught!

There's many more possibilities for autistic people than I even imagined. Thank you for the eye opener!

Singing was amazing. I loved how everyone was included no matter the talent. Inclusion at its best. Wish I saw play earlier so I could have told everyone I knew about it.

Kids were amazing. You could see them light up and come to life. Heartwarming. Felt like crying a few times because so touched. Theater gave them a way to express themselves that was beautiful.

I'm an actress - Felt so moved by what I saw - Loved it - My cheeks are hurting by smiling so much! Thank you!

Thrilled to see the opportunities you have provided for these children. I saw flowers that opened in the sunshine of the theater!

What a great example of making art, particularly performing art work. Inclusive, energetic, and engaging. More art in education, please!

I was moved strongly in a positive way. The autistic youngsters involved seemed to relate to the experience, other cast members and the audience like no other or few opportunities would give them. Congrats and many thanks for giving them (and me) this opportunity.

The integration of all the cast members was very exciting. This is an example of all what we could do with societal integration. Wonderful experience.

Very delighted to have been invited to such a wonderful production. As a behavior interventionist who works with children with autism, this has fully encouraged me to always support all kids and help them achieve all their dreams. Such as being part of theatre, music, etc. Thank you.

As someone with high-functioning autism, I thought it was beautiful.

Having a spectrum child who is now in college, I was so moved at the opportunity for the children on the spectrum to be fully included in the project. I couldn't stop crying. Thank you and bravo.

This show was simply amazing! I kept trying to hold back my tears. I think the community needs more resources that helps and uplifts children on the spectrum, like this one.

I loved the messages of acceptance and tolerance and the power of unity. They are certainly approachable to everyone--not just those with autism. Beautifully done!

CONCLUSION

To date, this study represents one of the few efforts to systematically examine the impact of theatre participation on youth with ASD, and provides an investigation of the interrelation of theatre and autism in an inclusive setting.

SUMMARY OF FINDINGS

Results of this study suggest that inclusive theatre experiences have important potential implications for improving the communication and socialization skills of young people with autism. As this study has revealed, theatre can have a significant and positive impact on youth with ASD and their self-esteem, empathetic abilities, and comfort with others; it also points to the potential for theatre to enhance levels of trust among young people with autism. These results are the most important implications of the study.

While the results for neurotypical youth were comparatively more muted, they also suggest that participation in inclusive theatre can help young people to develop greater

awareness and understanding of young people with autism, and of autism in general. Similar results were found among audience members who attended the *Joining the Spectrum* performances; they found the performances inspiring, beautiful, and felt demonstrated the potential of theatre to promote awareness of autism, generate inclusivity, develop community, and bring out the best in young people.

The impact on parenting stress of a child's participation in *Joining the Spectrum* parents was less apparent in the results of the study. In fact, many parents may have experienced increased stress as a result of negotiating the logistical load of their child attending a 5-week theatre conservatory. However, many parents did report increases in their capacity to try new and different things, and feeling their child appreciates them; they also reported decreased perceptions of feeling that their child does not learn as quickly as other children, as well as declines in being alone and without friends, trapped in parental responsibilities. These results point to the potential for theatre to build community, a topic worth further exploration in subsequent studies.

STRENGTHS AND LIMITATIONS OF THE RESEARCH

Strengths: This interdisciplinary inquiry successfully engaged a multidisciplinary collaboration among disparate academic disciplines (Theatre, Sociology, Child and Adolescent Development, Recreation and Tourism Management, etc.) The integrity of research was upheld by the research team consisted experienced faculty researchers, as well as undergraduate and graduate research assistants working under the supervision of their faculty mentors. In bringing together theatre practice and theory, this research project also created a synergistic

collaboration among various programs and entities on and off CSU, Northridge campus; namely, *TADW*, *The Miracle Project*, and the Institute for Community Health and Wellbeing. Overall, the project raised keen awareness on the part of community toward the autism spectrum as well as the social relevance of theater arts.

Weaknesses: Due to budgetary and other logistical limitations, the current research did not fully engage in inquiring into what happens in the process of the participant's performance experience. Therefore, the theory of liminality remains as a potential for future research inquiries.

FUTURE DIRECTIONS

The future research on the effectiveness of theatre arts on the autism spectrum and other imminent issues should continue building upon the current research project's findings. Pending institutional support, the academic focus of the graduate program (e.g., Masters in Theatre Arts) should expand beyond its narrow focus on theatre historiography to the wider field of applied theatre studies.

RESEARCH AND/OR POLICY RECOMMENDATIONS

The outcomes of this study can help to enhance the knowledge we have of autism, the potential efficacy of theatre as a multi-dimensional, intervention strategy, and the role of the performing arts in increasing autism awareness and acceptance. Such outcomes can have significant value to the scientific and the policy-making communities, and will also inform educators, performing artists, and families about the intersections of art and autism. This study

may also form a model program for the ways that local community social science researchers and arts practitioners can partner to develop arts-based and evidence-based collaborations. Coupled together, these outcomes will shape an empirical system that will model the intersection of theory and practice, and will significantly increase the understanding of the value of art as a practical means to increase knowledge and understanding of our social world.

ACKNOWLEDGEMENTS

The NEA Art Works research project, “Joining the Spectrum (JTS),” would not have been possible without the support and dedication from the following individuals:

Dr. Dianne Philibosian, Danielle de Asis from Cal State University, Northridge’s Institute for Community Health and Wellbeing; Shelley Bartenstein and Scott Perez from the Office of Research and Sponsored Projects; Ms. Elaine Hall, Ryan Berman, Garth Herberg, Jason Weissbrod, Zachary Marsh, Vida Simon, Katiana Zimmerman, Dominique Brown from The Miracle Project (TMP); Professor Doug Kaback, Melissa Filbeck, Hala Baki, Mari Uichanco, Caroline Law, Joel Pagenhart, Mitchel Council from the Teenage Drama Workshop(TADW). From the JTS production crew and staff, we gratefully acknowledge Ms. Elaine Hall, Ryan Berman, Laura Covault, Jason Weissbrod, Karen Howard, Garth Herberg, Zachary Marsh, Tina Choi, Gail Howes, Brian Barazza, Matthew Muranaga, Glen Howes, Quinesha Summerville, Kayla Alperson, Tina Castro, Chelsea Beyries, Jeff Frymer, Zack Winpee, Shelley Pack, Mari-Anne Kehler. The project owes its success to many volunteers for the JTS production including Loren Schwartz, Hannah Warren, Tara Bitran, Garrott Frymer, Michelle Friedman, Pelita Dasalla, Grace Yoo, Jenny Park, Analisa Venolia. The NEA Research Team and volunteers deserve recognition for their hard work and the list includes faculty as well as graduate and undergraduate researchers: Dr. Joong-Won Lee and Dr. Nancy Miodrag, Christopher Lawrence, Sarah Stembridge, Vincent Torres, Nadia Zuhdi, Edna Turcios, Roxanna Aquino, Jan del Castillo, Karla Guerra, Jessica Nevarrez, Anne Cavallaro, Tina Karnsomprot, Joshua Khabushani, Maria Watts. We give our profound thanks to Dr. Barry Prizant and Dr. Stephen Shore for offering their expert knowledge and insight as research consultants. Finally, our deepest gratitude goes to our cast of indomitable teenagers for the musical production of *Joining the Spectrum*, their family, and our audience members from the community.

REFERENCES

- Abidin, R. R. (1990). *The parenting stress index—Short form—Test manual*. Charlottesville: Pediatric Psychology Press.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Auyeung, B. , Wheelwright, S. , Allison, C. , Atkinson, M. , Samarawickrema, N. , et al. (2009). The Children's Empathy Quotient and Systemizing Quotient: Sex Differences in Typical Development and in Autism Spectrum Conditions. *Journal of Autism and Developmental Disorders*, 39(11), 1509-1521.
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An Inventory for Measuring Clinical Anxiety: Psychometric properties. *Journal of Consulting & Clinical Psychology*, 56, 893–897.
- Blumberg, SJ, Bramlett, MD, Kogan, MD, et al. (2013). Changes in prevalence of parent-reported autism spectrum disorder in school-aged U.S. children: 2007 to 2011–2012. *National health statistics reports*; no 65. Hyattsville, MD: National Center for Health Statistics.
- Corbett, Blythe A., Joan R. Gunther, Dan Comins, Jenifer Price, Niles Ryan, David Simon, Clayton W. Schupp, and Taylor Rios. (2011). “Brief Report: Theatre as Therapy for Children with Autism Spectrum Disorder.” *Journal of Autism and Developmental Disorders* 41:505–511.

- Corbett, Blythe A., Deanna M. Swain, Catherine Coke, David Simon, Cassandra Newsom, Nea Houchins-Juarez, Ashley Jenson, Lily Wang, and Yanna Song. (2013). "Improvement in Social Deficits in Autism Spectrum Disorders Using a Theatre-Based, Peer-Mediated Intervention." *Autism Research*.
<http://onlinelibrary.wiley.com/doi/10.1002/aur.1341/pdf>.
- Constantino, J. N., & Gruber, C. P. (2005). *Social Responsiveness Scale*. Los Angeles: Western Psychological Services.
- Deater-Deckard, Kirby. (2001). "Recent Research Examining the Role of Peer Relationships in the Development of Psychopathology." *Journal of Child Psychology and Psychiatry*. 42(5):565-579.
- Dunn, Michael E., Tracy Burbine, Clint A. Bowers, Stacey Tantleff-Dunn. (2001). "Moderators of stress in parents of children with autism." *Community Mental Health Journal*, 37(1), pp 39-52.
- Emunah, Renee. (1994). *Acting for Real: Drama Therapy Process, Technique, and Performance*. New York: Brunner-Routledge.
- Evans, Kathy and Janek Dubowski. (2001). *Art Therapy with Children on the Autistic Spectrum: Beyond Words*. London: Jessica Kingsley Publishers.
- Farrugia, David. (2009). Exploring stigma: medical knowledge and the stigmatisation of parents of children diagnosed with autism spectrum disorder. *Sociology of Health & Illness*, 31(7):1011-27.

- Gray, David E. (2002). "Everybody just freezes. Everybody is just embarrassed': felt and enacted stigma among parents of children with high functioning autism." *Sociology of Health & Illness*, Volume 24, Issue 6, pages 734–749.
- Hall, Elaine and Diane Isaacs. (2012). *Seven Keys to Unlock Autism: Making Miracles in the Classroom*. Indianapolis, IN: Jossey-Bass.
- Hughes, Jenny, and Karen Wilson. (2004). "Playing a part: The Impact of Youth Theatre on Young People's Personal and Social Development." *Research in Drama Education* 9(1):57-72.
- Jo Bromley, Dougal Julian Hare, Kerry Davison, and Eric Emerson. (2004). "Mothers supporting children with autistic spectrum disorders: Social support, mental health status and satisfaction with services." *Autism*. vol. 8 no. 4 409-423
- Landy, Robert J. (1994). *Drama therapy: Concepts, theories, and practices*. Springfield, Illinois: C.C. Thomas Publishers.
- Mandell, D.S., Novak, M.M, Zubritsky, C.D. (2005) Factors Associated With Age of Diagnosis Among Children With Autism Spectrum Disorders. *Pediatrics* 116(6) 1480-1486.
- Mandell, David S. and Mark S. Salzer. (2007). "Who joins support groups among parents of children with autism?" *Autism*. 11(2):111-122.
- Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223-250.

- Orsmond, Gael I., Marty Wyngaarden Krauss, Marsha Mailick Seltzer. (2004). Peer Relationships and Social and Recreational Activities Among Adolescents and Adults with Autism. *Journal of Autism and Developmental Disorders* Volume 34, Issue 3, pp 245-256.
- Peacock, G., Amendah, D., Ouyang, L., and Grosse, S.D. (2012). Autism spectrum disorders and health care expenditures: the effects of co-occurring conditions. *J Dev Behav Pediatr.* 2012 Jan; 33(1):2-8.
- Prince-Embury, S. (2007). *Resiliency Scales Manual: For Children & Adolescents: a Profile of Personal Strengths*. Harcourt Assessment, Incorporated.
- Rosenbaum, P. L., Armstrong, R. W., & King, S. M. (1986). Children's attitudes toward disabled peers: A self-report measure. *Journal of Pediatric Psychology*, 11(4), 517-530.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rutter, M., Bailey, A., Lord, C. (2003). *Social Communication Questionnaire (SCQ)*. Los Angeles: Western Psychological Services.
- Schechner, Richard and Willa Appel, eds. (1990). *By Means of Performance: Intercultural Studies of Theatre and Ritual*. Cambridge: Cambridge University Press.
- Shadish, William, Thomas Cook and Donald Campbell. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Stamford, CN: Cengage Learning.
- Sharpe, Deanna L. and Dana Lee Baker. (2007). Financial Issues Associated with Having a Child

with Autism. *Journal of Family and Economic Issues*. Volume 28, Issue 2, pp 247-264.

Shimabukuro, Tom T, Grosse Scott D, Rice Catherine. (2008). "Medical expenditures for children with an autism spectrum disorder in a privately insured population." *Journal of Autism and Developmental Disorders*. 38(3):546-52.

Sprecher, S. & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships*, 22, 629-651.

Turner, Victor. (1967). *Forest of Symbols: Aspects of the Ndembu Ritual*. Ithaca: Cornell University Press.

Turner, Victor. (1969). *The Ritual Process*. Penguin.

Turner, Victor. (1977). "Frame, Flow and Reflection: Ritual and Drama as Public Liminality." *Japanese Journal of Religious Studies*, Vol. 6, No. 4, 465-499.

Woodgate, Roberta L., Christine Ateah and Loretta Secco. (2008). "Living in a World of Our Own: The Experience of Parents Who Have a Child With Autism." *Qualitative Health Research*, 18(8):1075-1083.