Wiggle Room: The Impact of Dance on Pre-K Children with Special Needs

THESIS

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Abstract

This thesis attempts to explore the intersection between dance, early childhood education, and developmental disorders such as Autism Spectrum Disorder. There is currently a dearth of literature regarding the potential impacts of dance and creative movement on development for preschool-aged children with special needs, and because the constituency of children with disorders like autism is growing, it is important to ensure equal opportunities for education for all students. Literature suggests that dance could be a possible solution to the problem, so this thesis addresses how dance influenced development for a class of preschool students with special needs and their peer models.

This research is a mixed-methods case study of an urban integrated preschool classroom that received the “Dancing for Development” program – a ten-week creative movement program delivered by a professional ballet company in the Midwest. Data collected included field observations of the class, qualitative interviews with the classroom teacher and the teaching artists delivering the program, and survey data collected by the professional ballet company for program evaluation purposes. All data addressed three major domains of development: socio-emotional, cognitive, and motor. Quantitative and qualitative data were analyzed independently as well as holistically to get a comprehensive picture of the program.

Holistic data analysis suggested that the “Dancing for Development” program was correlated with gains in all three areas of development – socio-emotional, cognitive, and
motor domains. Statistical analysis of surveys showed that there were significant differences for both groups of students – those with special needs and peer models – from the pre-surveys to the post-surveys in socio-emotional and cognitive development, and the program appeared to help bridge the gap between the two groups of students. The students with special needs also demonstrated significantly more growth than the peer models in socio-emotional development. Movement rubrics showed that both students significantly improved in motor development from the beginning to the end of the residency, but quantitative analysis suggested the peer models experienced more growth then the students with special needs. Qualitative data aligned with the quantitative data, although it suggested that the students with special needs demonstrated more growth in motor development than the movement rubrics showed.

The obvious and consistent trend in developmental growth suggests that programs such as “Dancing for Development” could be successful at bridging the gap for students with special needs in a preschool setting. Though several limitations prevent the assumption of causality, it is clear that the program at least directly correlates with gains in all of the aforementioned development areas. Future research should attempt to address causal links between the program and the observed growth in development.
Dedication

This thesis is dedicated to my mom, who provided me with constant support and never allowed me to underestimate my own potential. It is also dedicated to Omarthan Clarke, who was always there to provide a laugh when the research process seemed overwhelming, and without whom my sanity would likely not still be intact.
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Chapter 1: Introduction

“When students with disabilities have access to dance whether it is in a P-12 school environment, a private studio, or a community program, they learn that there are no limits to what they learn and can do.” – Theresa Purcell Cone, PhD

My research is inspired by my passion for dance and my strong conviction that preschool and elementary education is not complete without it. As someone who has been immersed in the performing arts from a very young age, I cannot separate myself – and thus my core identity – from my artistic experiences. The most significant of these have been through the medium of dance, both as a student and as a teaching artist at BalletMet Columbus. Through personal experiences on both ends, I have witnessed the profound effects that dance can have for both students and teachers, and especially for students with special needs.

During my senior year of high school, I had to complete a Senior Capstone Project. The best piece of advice my teachers gave me was to find my passion. I didn’t really have any idea what to do, so based on my interest in dance and my love of working with children, I chose to create a dance program for kindergarteners at Weinland Park Elementary School. Over the course of two months, I went into a kindergarten class and taught them a dance that I choreographed for them. At the end of the program, we had a final performance where the parents came in to watch and see what the kids had been
working on during my time in the classroom. Watching the children have fun with the program and seeing the smiles and the joy on their faces was extremely inspiring.

My passion from high school led me to minor in dance in college, and following my graduation I began working as an intern and then a teaching artist at BalletMet Columbus. In my first year with BalletMet as a teaching artist, I assisted in a second-grade program called Moving Into Literacy at Trevitt Elementary School in the Columbus City Schools District. We had class in the cafeteria, and sometimes students would wander in before a teacher told them to move along to where they were supposed to be. One day, a fifth grader heard the music and came into the cafeteria. I noticed him, and wondered why he looked so familiar to me. He started asking, persistently, I might add, when the fifth graders would get to dance. “When can the fifth graders have dance? Why can’t we do it now? When is it my turn?” A teacher finally said, “Zaire, you need to get back to your class right now…” And that’s when it hit me. Zaire was one of my students from kindergarten at Weinland Park Elementary. I was his first exposure to dance in schools, and he came in hoping that he could have the experience again. I couldn’t help but think that I influenced that – my class had a real impact on him. It affected him and made him want to dance as a fifth grader. I couldn’t believe it. It was one of the most inspiring moments that I have had as a teaching artist. Moments like that are the reason that I am so compelled to do the work that I do, and that is the reason that I firmly believe that dance is essential in early childhood education.

Needs Statement

Though the current federal legislation includes the arts in its definition of a “well-rounded education” (Americans for the Arts, 2016), “access to arts education in
[American] schools is eroding” (Blakeslee, 2013, p.1). That trend has elicited an area of research dedicated to exploring potential benefits of the arts in education. Numerous studies have reported significant benefits of teaching the arts in the public school curriculum. Various longitudinal studies have repeatedly shown that students involved in arts education are more likely to receive higher scores on standardized tests and demonstrate increased performance in other subject areas such as math and reading (National Assembly for State Arts Agencies, 2014). The fine arts act as motivators – they help to create a positive school environment, and therefore students are less likely to drop out. Instead, they are more likely to develop important social skills and become more engaged in the classroom (National Assembly for State Arts Agencies, 2014).

Involvement in arts education correlates with higher achievement for students in the future as well. James Catterall (2009), for example, found that among disadvantaged students, those with increased arts education were more likely to find gainful employment, earn a college degree, and volunteer. Furthermore, “the arts provide the skills and knowledge students need to develop the creativity and determination necessary for success” in the 21st century (Blakeslee, 2013, p.1). Robinson (2013) also performed a meta-analysis investigating the effects of arts integration on the academic success of disadvantaged students in particular. Based on forty-four studies, Robinson found that no arts-implementation studies had negative effects.

Despite the significant evidence that arts education is beneficial for students, the arts are not universally implemented in public schools. Dance, specifically, is especially scarce in the classroom. The National Center for Education Statistics (NCES) published a report comparing the availability of arts classes in public schools in the 1999-2000 and
2009-10 school years. They found that though 20% of public elementary schools offered
dance-specific instruction in ’99-’00, only 3% offered it in ’09-’10. The incidence of
dance in other academic areas such as physical education and music also decreased by
4% and 11%, respectively. Though there was a 1% increase of dance integration
throughout the decade, the use of dance integration in public elementary schools remains
below 30%. As compared to the availability of visual arts (83%) and music (94%) in
public elementary schools in ’09-’10, it is clear that dance is significantly
underrepresented in the classroom (Parsad & Spiegelman, 2012). Furthermore, even
within the schools that offer dance education, it is not always offered consistently or
throughout the whole school year. Though the consistency has increased over the ten-
year period, only 53% of schools (of the 3% that offered dance instruction) held weekly
dance classes, and only 48% of the same schools offered yearlong classes. The
differences in availability between dance and other arts subjects suggest that dance
advocates require a platform to promote dance education – more research is needed to
provide a strong argument for the provision of dance in public schools.

As dance is rarely emphasized in the classroom, it is also underrepresented in the
literature. The National Dance Education Organization (NDEO) recently compiled a final
evidence report that analyzed the influence of dance in education. Results showed that
dance can have positive impacts on learning, but the authors concluded that more
investigation is needed in many areas. Two such areas include dance and early childhood
education, as well as dance and neuroscience (Bonbright et al., 2013).

Limited research in the field of dance education addresses the use of dance in
classrooms for students with special needs, or more specifically, students with Autism
Spectrum Disorders (ASD). There are several reports regarding Dance-Movement Therapy (DMT) as an effective way to “treat” children with ASD, but DMT is not always readily accessible for families due to cost or availability of therapists. In-school dance programs are a potentially more equitable way to provide similar stimulation for children on the spectrum, but more research is required for a better understanding of the issue.

While there are individual studies that address dance in early childhood education and dance and ASD, I know of no study that combines the concepts to find interactions in all of the aforementioned domains. My research would be the first to investigate the impact of dance in pre-kindergarten special needs classrooms. As such, it can provide insight for issues like program development for children with ASD, as well as empirical evidence of why dance should have a place in public schools.

This thesis will attempt to connect some of the pieces of the already existing literature. Ideally, it will begin to address the dearth of information about dance and early childhood education. In looking at a creative movement program delivered by a professional ballet company for prekindergarten students with disabilities, I intend to bridge the gaps in current literature and provide an argument for the importance of dance education in public schools. I hope to prove that in-school dance programs provide significant benefits for preschool students with disabilities, and thus that such programs are a necessary part of a well-rounded early childhood education.

Research Questions

The ultimate scholarly aims of this research study include: to observe whether or not a mid-western professional ballet company’s pre-kindergarten creative movement program, “Dancing for Development,” has positive influences on students in special
needs classrooms, and to determine if “Dancing for Development” correlates with improvements in motor development, socio-emotional behaviors, or cognitive development. The central question is: how does dance influence development in preschool students with disabilities? Sub questions include:

- Is there a correlation between dance and motor development?
- Is there a correlation between dance and cognitive development?
- Is there a correlation between dance and socio-emotional development?
- Are the influences of dance in the special needs classroom different from the influences of dance in typical classrooms?
  - If so, what implications result for the teaching artists?
- How do my findings relate to the relevant literature regarding dance, early childhood education, and children with disabilities?

Impact and Limitations of Research

To understand some of the limitations and biases of this study, it is important to know where I come from as a researcher. As a white, able-bodied female, my worldview is situated in that lens, and my interpretations of the data likely also reflect that. Additionally, because my background is in quantitative analysis, my comfort lies within numbers and the scientific method. However, to be thorough, I use both qualitative and quantitative methods in this study. Because this was my first attempt at qualitative analysis, there were several biases evident in my notes of the program, which are fully explained in the qualitative analysis section.
In the short term, my study will provide practical insight into “Dancing for Development.” Though the ballet company does yearly evaluations of the program, it has never looked exclusively at the “atypical” classrooms that host “Dancing for Development.” At the very least, my research will be able to compare a specific inclusion classroom to other “typical” educational settings. I can investigate whether or not the results I see in the students with special needs are comparable to students in traditional classrooms, and discover whether the children with special needs in my case study benefit in the same ways as “typically” developing “Dancing for Development” participants. Those results will have a direct impact on the ballet company and the teaching artists in the program – if my study uncovers any differences in program impact between the two types of classrooms, then the ballet company will not only gain a deeper understanding of how the program works, but will also be able to adapt the program accordingly for specific environments.

If my research provides evidence that “Dancing for Development” works differently in non-traditional classrooms, then that will inform the ballet company and the teaching artists delivering the program that there may be specific teaching techniques that are more or less effective in different settings. My study could therefore potentially impact the methods of delivery for the program. Any information that I discover can immediately be applied to ongoing programs, hopefully resulting in an increase in program effectiveness. Thus, one of the most significant short-term impacts will be an improvement in “Dancing for Development” due to a better awareness of how the program works in particular classrooms.
Despite the fact that my case study is on a small scale, there is still the potential for lasting impacts in the communities that I will observe. For example, if I find highly positive influences in development that are likely due to participation in “Dancing for Development,” then that creates a basis of support for having creative movement programs in early-childhood education classrooms. My study results will help to empower stakeholders (parents, teachers, etc.) to support similar dance programs in public education. If the stakeholders believe that there are significant benefits for the children, then they are more likely to advocate for programs that elicit those benefits. Ideally, my research will help me make allies that will fight for dance education programs in schools.

Though I will not necessarily be able to measure it, a potential long-term impact of my case study will be within the students themselves. “Dancing for Development” boasts of improvements in children’s motor, cognitive, and socio-emotional development. Ideally, those three areas result in long-term effects in students – participation in “Dancing for Development” in preschool may incite lasting changes that benefit students throughout their lives. Obviously it would require a longitudinal study to discover whether that statement holds true – which is more than I will be able to do in a Master’s thesis – but perhaps this case study will provide a basis for beginning a longitudinal study in the future.
Chapter 2: Literature Review

The Necessity for Arts Education in Schools

Before addressing dance education in particular, it is important to review the literature to determine whether it is necessary to make a case for arts education in public schools at all. Despite the fact that arts education in public schools is often undervalued in favor of other subjects, many studies have found ample benefits of including the arts in the public school curriculum. Arts Education Partnership, a national coalition created by the National Endowment for the Arts, compiled research describing the influences that arts education can have in school, work, and life (2013). Specifically, researchers found that arts education helps to improve literacy and English Language Arts (ELA) skills as well as math achievement. Furthermore, arts education fosters critical thinking skills and enhances the general climate of the school – schools with strong arts education programs report fewer disciplinary referrals and demonstrate higher teacher satisfaction than schools without arts programs. For students that are typically disengaged in schools, the arts provide motivation to learn by giving them a medium through which to connect new knowledge to their own experiences as well as a means of expressing what they learn. Finally, several studies report higher attendance rates for schools that include the arts in the curriculum as compared to schools that do not (Arts Education Partnership, 2013).

Several specific studies also demonstrate the influence of the arts on other academic subjects even in early childhood. Phillips et al. (2010), for example, assessed...
the effectiveness of an arts-integrated early-learning program. Promoting and Supporting Early Literacy through the Arts (PASELA) was a program that used visual and performing arts integration in all subject areas to promote emergent literacy in preschool students. The study evaluated 181 children involved in the program. Outcomes were defined based on standardized tests tailored to early-childhood. Though some effects were small, researchers found several statistically significant positive differences between the pre- and posttests, suggesting that arts-integration helped children to improve in overall learning and literacy skills.

**Figure 1. Arts Outperform Non Arts Students on SATs**

![Bar chart showing SAT scores for arts and non-arts students from 1993 to 2015.](image)

*Source: The College Board, 2014*

In addition to enhancing academic test scores and the educational climate of a classroom, the arts have been shown to correlate with higher SAT scores for graduating high-school seniors. The College Board’s (2014) group profile report for college-bound
seniors in 2015 provides information about the high school class of 2014’s aggregate SAT scores. An analysis by Americans for the Arts (2016) demonstrates that students who took four years of arts and music classes outperformed students who had ½ year of arts and music or less (see Figure 1).

Numerous studies have also shown that in addition to directly affecting academic achievement, arts education can promote social development as well. Horowitz and Webb-Dempsey (2003) describe several studies in which the arts were found to encourage social domains of learning. For example, they cite three independent researchers (Catterall, Harland, and the Teacher’s College Group) who found that drama exercises foster empathy in children. Additional social-developmental improvements due to arts involvement included creativity, expressive skills, self-confidence, positive risk-taking, and increased self-regulatory behaviors such as paying attention and persevering (Horowitz and Webb-Dempsey, 2003). Each of the aforementioned socio-emotional skills helps students to be more successful in the domains of school, work, and life.

Arts education promotes future success for students as well. Figure 2 illustrates the results of a study by James Catterall (2009): among disadvantaged students, those with increased arts education were more likely to find a job after high school graduation, earn a college degree, and volunteer. Catterall and Hampden-Thompson (2012) also performed a follow-up meta-analysis of four longitudinal studies that demonstrated similar results. For example, students who experienced high levels of arts involvement in grades kindergarten through eight showed more positive outcomes than peers with low arts involvement. “To varying degrees, those outcomes extend to school grades, test scores, honors society membership, high school graduation, college enrollment and
achievement, volunteering, and engagement in school or local politics” (Catterall & Hampden-Thompson, 2012, p. 24). Though many of the academic achievement outcomes were specific to low-SES students, a positive correlation in arts engagement and civic participation such as voting existed for high-SES students as well. Therefore, arts education provides benefits for all students in several areas of school, work, and life (Catterall & Hampden-Thompson, 2012).

Figure 2. Increased Arts Involvement Among Disadvantaged Students Leads to: Finding a Better Job, Earning a College Degree, and Volunteering

According to the Americans for the Arts Congressional Handbook (2016), “comprehensive arts education fosters the creativity and innovation needed for a more competitive workforce” (p. 11). Fostering the development of creativity is becoming increasingly important in America. Ready to Innovate, an initiative by The Conference Board et al. (2008), found that creativity is one of the top three personality traits that U.S. employers consider most important to success (see Figure 3). Over the past twenty years,
Americans’ intelligence (as measured by IQ scores) has consistently risen. However, over the same time period, creativity scores in the same population have progressively decreased (Kim, 2011). The Torrance Tests for Creative Thinking (TTCT) are highly regarded tests that measure creativity. Specifically, the TTCT measures traits such as fluency (ability to produce ideas), elaboration (detailed, reflective thinking and motivation to be creative), abstract thinking, originality (ability to produce new and unique ideas), and resistance to premature closure (ability to be curious and open-minded). Studies using TTCT in 1990, 1998 and 2008 revealed a steady and persistent decline in creative thinking across all components of the test. The most significant effects manifested in children in kindergarten through third grade. Kim (2011) argues that in light of the looming creativity crisis, it is imperative that “efforts to encourage creativity should begin in preschool or before” (p. 293). It is generally accepted that arts promote creativity, and therefore, schools should work to implement strong arts education.
curricula in order to combat the decline of creativity in American children (President’s Committee on the Arts and Humanities, 2011). Former Secretary of Education Arne Duncan agrees that encouraging creativity through arts education in schools is essential. He argues: “to succeed today and in the future, America’s children will need to be inventive, resourceful, and imaginative. The best way to foster that creativity is through arts education” (President’s Committee on the Arts and Humanities, 2011, p.1).

Given the relationship of arts education to positive academic and social outcomes, it is clear that arts education has the potential to fill an important gap in the current educational climate. The creativity crisis presents a barrier for current students to be successful in today’s workforce, and it is important for students to have the opportunity to engage in learning that will foster creative skills and critical thinking. However, since this thesis will address the impact of dance in special needs preschool classrooms, it is important to review literature that pertains specifically to dance education. The following sections will discuss some of the available research regarding dance in public schools.

Dance Education in Public Schools

The majority of the existing literature regarding dance education concerns “typically” developing children rather than the population of students with developmental disabilities. In order to have a sufficient understanding of the use of dance to promote positive outcomes for all students, it is important to understand it first in the traditional educational context. Though there exist fewer studies regarding dance than other art forms, most correlate with positive outcomes in academic subjects as well as both physical and mental health. Admittedly, many of the studies are anecdotal and less empirically rigorous than studies in other disciplines, so further research and information
are needed for a more comprehensive understanding of the instrumental effects of dance in education.

In 2013, the National Dance Education Association (NDEO) created an evidence report analyzing the impact of dance on learning. In their review, they found that being exposed to dance in schools contributed to positive effects not only in academic subjects such as language arts, math, and science, but also in memory, critical thinking and socio-emotional development (Bonbright, et al., 2013). For example, McMahon et al. (2003) investigated the effects of a reading intervention program called Basic Reading Through Dance (BRD). First grade students in the program focused on developing reading skills by creating letter shapes with their bodies, and working with partners to represent letter combinations. Using the PhonoGraphix assessment, researchers found that the students who took part in BRD initially scored lower than similar control students who would not receive the program. Posttest scores, however, showed that BRD students improved significantly more than control students on every aspect of the test following the program. Thus, empirical evidence shows that dance can greatly improve first-graders’ reading skills (McMahon et al., 2003).

Dance integration has been found to have positive effects in STEM subjects as well. Moore and Linder (2012) discuss a collaborative effort between a dance specialist and third-grade classrooms to enhance students’ learning of geometric concepts. By creating geometry dances that incorporated both math standards and dance standards, students were able to internalize and better comprehend geometry. Using their bodies to create shapes and angles gave students a deeper understanding of how shapes and angles “worked” (Moore & Linder, 2012). Other studies examine the benefits of dance on
science, primarily within the realm of information retention. In Baltimore, for example, one researcher compared science students and found that those involved in a dance program “performed better and retained knowledge 30 days later” than students without dance intervention (Bonbright et al., 2013, p.18).

Research in both neuroscience and socio-emotional development show that dance has additional benefits that go beyond the classroom. Paulson (2002), for example, argues that learning and performing activities physically changes the brain – due to plasticity, it is possible to use dance to create new neurological pathways for learning. When students are engaged in a dance program, they activate multiple systems in the brain. Furthermore, dance inspires emotion, and because emotion stays linked to learning, the dance-elicited emotion is a powerful learning tool (Paulson, 2002). Other researchers point out that dance stimulates mirror neurons – neurons in the brain that activate both when one performs an action and when one sees another person performing the same action. In dance education, students usually watch a demonstration of movement before they attempt it themselves. Because mirror neurons are activated in both cases, learning can happen more quickly and effectively. Mirror neurons have also been related to the development of empathy in children. In mirroring exercises, students imitate one another while they express themselves through movement. Mirroring helps students to step into each other’s shoes, which is an important aspect of empathy. It also helps them to feel accepted and validated by other students and teachers, encouraging confidence and consequently helping academic performance as a whole (Bonbright et al., 2013).

In addition to the NDEO’s literature review and evidence report, the literature offers a case study specific to using dance in a preschool classroom. Logue et al. (2009)
performed an evaluation of a dance intervention that allowed students to cultivate their
ey early reading and writing skills. The classroom teachers practiced different dance
movements with the students – jump, twirl, kick, etc. – to make students familiar with a
basic dance vocabulary. The students then began to “write” their dances. By associating
symbols with each movement, the students created a written dance language. Through
picture representation of the dance movement (with the action words written under the
picture), the students could arrange the pictures to express their own dance. Other
students would “read” the dances and perform them based on the “writing.” The teachers
found that the children began to understand that dance could tell a story, and they were
consistently “writing” their dances from left to right, demonstrating the beginning of a
basic understanding of literacy (Logue et al. 2009). Though this was a simple case study
without explicit empirical measures, it suggests that dance can potentially be used to
promote academic achievement even in early childhood education.

Though research about the impact of dance on early childhood education is
limited (Bonbright et al., 2013), there are examples of successful programs that integrate
dance into the school day. One such program is The Wiggle Jig, provided by BalletMet
Columbus, central Ohio’s professional ballet company. During the residencies, two
teaching artists and a live accompanist visit early childhood centers and preschool
classrooms in public schools once per week for thirty minutes at a time. Each lesson plan
acknowledges relevant content standards (English/Language Arts or math, for example)
as well as dance standards. The goals of The Wiggle Jig program include cognitive,
physical, and social emotional development (Emory-Maier & Pierman, 2016). Every
year, BalletMet conducts an annual evaluation of the program. In 2015, the evaluation
report demonstrated significant improvement in students’ neuromotor skills, as well as gains in social emotional development and subject-specific (math and science) knowledge (see Figure 4) (Emory-Maier & Pierman, 2016). Therefore, evidence shows that participation in dance education during early childhood can help children “benefit not only in neuromotor skill development, but also in social skills and academic areas such as math, science, and general cognition” (Emory-Maier & Pierman, 2016, p. 11).

Rather than including dance in academic subjects, it is more common for dance programs to occur within the physical education curriculum. Since childhood obesity is a salient problem in the United States, schools have tried many methods to decrease the rate of obesity in students. Dance programs in gym classes have had success in helping
students to be more active. For instance, Huang et al. (2012) performed an evaluation of an elementary ballroom dance program to see if students who participated in the program achieved the recommended levels of physical activity (as suggested by Healthy People 2010) as well as to observe changes in BMI over the course of the ten-week program. Researchers found that students involved in the program did achieve the appropriate level of moderate-to-vigorous physical activity, suggesting that dance is a good way to promote physical activity during the school day. Researchers also found that while 86% of students remained in the same BMI category, 14% improved one or two categories and no students moved to categories of greater risk (Huang et al., 2012). Therefore, dance is an effective way to promote healthy living as well as increase academic and neurological performance.

Stinson (2005) discusses the value of dance as being fun for students, or creating positive affect. In her survey of over 50 middle school students, she primarily found that they thought dance was “fun.” However, schools tend not to view fun or happiness as an outcome of learning. Stinson argues that despite the lack of emphasis, there is value in creating joy in and of itself. She analyzes the work of several scholars to describe how dance class promotes happiness and instills joy in children, which is the foundation for happiness in adulthood. Additionally, creating joy through dance in school can help students to self-actualize, which in turn gives them the confidence to succeed in school and in life (Stinson, 2005).

Despite the significant evidence of the benefits of dance in schools, the National Dance Education Organization states that “of particular note, the field of Early Childhood Education is also listed as an area in need of further research” (Bonbright et al., 2013).
Though the literature generally supports the benefits of having dance in the classroom, specific instances regarding early-childhood education are rare. Therefore, this thesis project will attempt to partially address the gap in the literature.

Dance Education in Special Needs Settings

Since this thesis will attempt to explore dance education for students with special needs, it is important to investigate the literature to see other instances of dance instruction specifically in a special needs setting. It will be necessary to ultimately determine whether those kinds of programs are feasible, sustainable, and effective in the classroom. The following brief examination of literature will address specific cases of using dance integration in special needs settings.

The majority of literature that describes arts intervention in special needs classrooms is not specific to dance, but rather includes dance along with other performing arts (music, drama) and fine arts (drawing, painting). However, in the studies that include dance as a separate form of intervention, evidence supports positive effects of dance in non-traditional classrooms. For example, Performing Arts Workshop, one of the oldest arts education organizations in San Francisco, conducted an evaluation of its Artist Residency Intervention in Special Education (ARISE) program in 2008 (Mele et al., 2008). The program provides artist residencies in both theatre arts and creative movement (dance) for special needs and inclusive classrooms (classes with both special needs and “typical” students) for third through fifth graders. Among several goals for the program are the development of self-confidence, teamwork, and other social skills that are not explicitly taught in the classroom. Evaluators employed focus groups, field observations,
and pre- and post-surveys to discover whether the ARISE program met its intended goals (Mele et al., 2008).

One of the main areas of investigation concerned pro-social behaviors. Based on the data from Performing Arts Workshop’s evaluation, the ARISE program was successful in increasing students’ self-confidence. The special needs classroom also demonstrated greater gains compared to a general education class in overall pro-social classroom behaviors, such as working together and respecting others. After the ARISE intervention, students showed greater enthusiasm for learning and a better ability to persevere through challenges. Many students displayed more effective self-expression, verbal skills, and body awareness following ARISE as well (Mele et al., 2008).

Evaluators also assessed critical thinking and other academic impacts of the ARISE program. Students who received the program showed gains in critical thinking, improvements in both English/Language Arts and math standardized tests, and were better able to stay on task and answer questions throughout the school day (Mele et al., 2008). Though this organization’s research was for a specific program in a certain environment, the results suggest that there is potential for performing arts (and thus, dance) integration in schools to promote positive outcomes for students with special needs.

VSA arts, an international organization for the arts and disabilities as well as a partner of the Kennedy Center, also conducted a study to better understand the impact that the arts may have on students with disabilities (Mason, Thormann, & Steedly, 2004). Though it was another study that included all arts disciplines, researchers reported that within the sixteen focus groups with classroom teachers, 214 comments described the use
of music, dance, and movement in the classroom. In the most general sense, the researchers found that the teachers were extremely enthusiastic about their students’ involvement in the arts. However, most teachers stated that conditions for arts integration were not ideal due to time constraints, and that the best implemented exercises occurred in a preschool setting (Mason, Thormann, & Steedly, 2004).

Regarding arts integration in general, most of the teachers agreed that “the arts inherently provide for individualization of instruction, a key element to meeting the needs of diverse learners” (Mason, Thormann, & Steedly, 2004, p. ix). The teachers described that the arts also provide students with an avenue of communication and expression, which is especially useful for non-verbal children. Furthermore, teachers argued that being able to engage in the arts forced students to make choices, which cultivated autonomy. In general, arts integration allows students with disabilities to continually engage “in the acts of observation, rehearsing, weighing, judging all of which are essential tools for learning in general” (Mason, Thormann, & Steedly, 2004, p. x).

Many teachers in the VSA arts study described the specific impact of dance on their students. A frequent comment had to do with the ability of dance and movement to explain the shape and design of objects and systems, as well as the concept of space. The students must develop an understanding of what it means to move in a big space by themselves versus when several students must negotiate the same space at the same time. Additionally, dance was especially helpful for pre-verbal students to enhance communicative skills. For those children, “the way they express themselves is nonverbally, so movement is really good for that” (Mason, Thormann, & Steedly, 2004, p. 19). Furthermore, when dancing in a group, it is imperative to communicate with other
group members to coordinate the dance and accomplish the task set before them. The same teacher also stated that observing the children during rhythmic activities was an indicator of engagement – since music and rhythm are so structured, it is clear if a student does not understand it or is not paying attention. Another teacher mentioned that creative movement is valuable for students with disabilities because there is not a right or wrong answer, so the children will not fail. Movement provides “a more reflective mirror for children to see the best of themselves” (Mason, Thor mann, & Steedly, 2004, p. 21). Though the VSA arts study provides evidence that movement programs for students with disabilities can be successful, the teachers were primarily interested in describing the impact of dance on their students rather than actually assessing it. Therefore, more evidence is needed to determine exactly how and the extent to which dance influences academic and social development in students with disabilities.

In addition to large-scale multi-disciplinary studies, there exist some examples of successful dance programs for students with developmental disabilities such as autism. Reinders, Fletcher, & Bryden (2015) describe a recreational dance program in a private studio catered to children and young adults with special needs. Students are separated into classes based on their ages (ranging from four to late 20s), and each student has some kind of a diagnosis such as cerebral palsy, Down’s syndrome, autism, learning disabilities, or other developmental disabilities. The studio dance program is in its fifth year, and thus is sustainable and likely effective (Reinders, Fletcher, & Bryden, 2015).

There are several important components that make the special needs studio program run smoothly. For example, the program creator Jaclyn (pseudonym) remarks that volunteers and assistants are instrumental in classroom instruction. Having extra
hands in the room to calm students that become overwhelmed allows the primary instructor to continue teaching without disturbing other students. She also praises the use of the buddy system – buddies are adults that volunteer to participate in the class with the children. Jaclyn states that a one-to-one dancer to buddy ratio is productive for each student because they receive constant help and attention if necessary. Junior buddies, or typically developing children closer in age to the students, may also help if the dancers do not need a significant amount of help and guidance from an adult. Additionally, Jaclyn praises the use of props in her classes. She states that using props can be exciting and stimulating for the dancers, and that props can encourage dancers to move their bodies in different ways (Reinders, Fletcher, & Bryden, 2015).

Though Jaclyn’s special needs dance program takes place in a private dance studio rather than a public education setting, the principles can still be applied to a school classroom. Within the article, Jaclyn provides helpful tips for using her program as a model, so it is possible to implement similar programs in other places. Many of her strategies can be replicated in an early childhood classroom; for example, in inclusion classrooms where there are typically developing peer models in the same learning environment as the students with special needs, the “buddy” system is easily transferable. Jaclyn’s model, therefore, provides evidence of a sustainable use of dance for students with special needs.

Sandra Stratton Gonzalez (2015) provides an example of a Movement and Music Program in a public school classroom setting specifically for children with autism. She states that the goals of her program include improving “social skills such as listening, taking turns, greeting and parting, and making eye contact” (Gonzalez, 2015, p. 16). She
also hopes to develop gross motor skills and the ability to learn and replicate movements. Gonzalez discusses that the classroom space is relatively small, so to prevent distractions, she moves large furniture such as bookshelves out of the way and de-clutters the room. Her class structure is highly regulated to provide a consistent routine for her students, which is “crucial in classes for students with autism” (Gonzalez, 2015, p. 17). Each class begins with a greeting, followed by a set warm up in which the exercises are sung. Children participate in circle dances after the warm up (ex. walk in a circle, gallop in a circle), and continue the class by moving one at a time across the floor. Depending on the time and comfort level of the class, Gonzalez will introduce other activities and props such as ribbon wands or drums, and she ends each class with a cool down and goodbye song. In order to assess the progress of her students, Gonzalez keeps a checklist for individual students and classes overall. “The checklist includes reoccurring criteria such as focus and participation, as well as lesson-specific criteria such as performing a movement sequence or demonstrating fast and slow tempos” (Gonzalez, 2015, p. 21).

Gonzalez’s Movement and Music program for children with autism provides yet another example of a sustainable, classroom-ready model that could be transferred to various learning environments. The specific examples listed above provide significant evidence that it is feasible to have dance programs in schools for children with special needs, and support the point that similar programs can be accessible to a diverse array of learners. More information is needed, however, regarding the specific effects of dance on academic, social, and motor development, especially for the population of early childhood students with special needs.
Autism, Development, and General Educational Implications

A new phenomenon in the arena of health that has an increasing impact on public education is the rising prevalence of Autism Spectrum Disorder (ASD). ASD is a general term that refers to a group of complex disorders in neurological development. According to Autism Speaks, an advocacy group dedicated to raising awareness and funding research about autism, ASD is the fastest growing developmental disability. In the decade from 2000-2010, diagnoses of autism increased by 119.4%. By 2014, an estimated one in sixty-eight children had autism; by 2015, that number increased to one in forty-five (autismspeaks.org). A spectrum disorder, ASD manifests in unique ways for each individual. Symptoms can range from mild to severe, and every person with ASD exhibits a different combination of strengths and challenges. The growing number of students entering the school system with ASD suggests a number of implications for educators in public schools.

According to the CDC, there are a number of signs and symptoms that are associated with ASD, each of which can have implications in the traditional classroom. The first are associated with social skills, such as eye-contact and inappropriate or flat facial expressions. Oftentimes, children with ASD are easily over-stimulated by sensory input, so it can be difficult for them to focus on more expressive areas of the human face (such as eyes). They instead tend to focus on inanimate objects or areas of the face that convey less emotion, such as the chin (www.cdc.gov). With eye contact often considered to be a sign of attention and respect, classroom teachers may misinterpret a lack of eye contact as a lack of interest or attention, even though that is not always the case. ASD is often associated with difficulties in communication as well – about 40% of children with
ASD are nonverbal, and many have difficulty interpreting gestures, body language, or emotional expressions. Other symptoms of ASD include hyperactivity and a short attention span (making it difficult for students to sit still for long periods of time, as in “traditional” education), impulsivity, fine and gross motor difficulties (which may impede things like handwriting), obsessive interests, and becoming upset over minor changes (www.cdc.gov). Furthermore, some researchers have found that ASD is often comorbid with attention deficit hyperactivity disorder (ADHD) – it is not unusual for children to have both pathologies at the same time. It is approximated that 30-50% of children with ASD also exhibit characteristics of ADHD, which can further complicate behavior during the school day (Leitner, 2014). Based on the aforementioned characteristics of ASD, children in the lecture-based typical classroom environment often struggle to succeed.

Though scientists have investigated the physiology and causes of ASD, it is still not well understood. Several theories have emerged in the research that suggest potential underlying causes for some of the deficits associated with ASD. In terms of cognitive development, Jean Piaget provides a stage theory of development for children from birth to twelve years, beginning with a sensorimotor stage from birth to two years. During the sensorimotor stage, children are learning to coordinate sensation with actual physical movement (Harwood et al., 2008). Piaget describes abnormal development as an arrest, wherein children do not progress through each stage of cognitive development, or progress more slowly than anticipated (Thurber et al., 2007). Some researchers have suggested that ASD can be interpreted through the Piagetian lens to describe some of the atypical cognitive development associated with the disorder. For example, Morgan
(1986) offers a theory of autism from a Piagetian perspective that describes “a cognitive arrest in some functions at the sensorimotor level” (p. 447). He describes that some of the deficits associated with autism manifest during the sensorimotor stage as a reduced ability (compared to “typical” children) to imitate gestures and vocals, comprehend verbal labels, and engage in symbolic play – together, these exhibit an overall deficit in representational thought. Morgan also describes that representational thought is a function of two systems – the ability to recall information and the ability to form and manipulate objects or symbols. Morgan (1986) states that for typical children, “these two systems develop together, whereas in autistic children the systems diverge, with the latter being arrested” (p. 446). He goes on to reference and explain some of the symptoms of ASD using Piaget’s two-factor theory of symbolic meaning, which differentiates between representation and conceptualization. Representation refers to the figurative aspect of symbols, and allows for recollection of objects and events. Children demonstrating figurative knowledge may imitate actions or speech they have previously witnessed. However, conceptualization, or the operative aspect of symbols, requires attaching meaning to a symbol. Children with autism may be proficient in cognitive development in terms of figurative functions, but tend to lag in the development of operative functioning. As a result, children with autism “appear to learn nonsense and meaningful material equally readily” (Morgan, 1986, p. 450).

Though some researchers have tried to classify cognitive deficits of autism through Piagetian theory, others have investigated the significance of the social-developmental challenges of children with autism. Mundy et al. (1986) attempted to classify some of the social deficits associated with ASD through investigating nonverbal
communication in preschool aged children. The three kinds of nonverbal behaviors they investigated were affiliation/social interaction (to create or maintain face-to-face interactions with the focus on the child, such as reaching out to others), joint attention(indicating (to engage in shared awareness of an object or event with a social partner, such as showing a toy), and behavior regulation/requesting (getting the attention of a social partner to get help obtaining an object, such as pointing to a toy). In their study, Mundy et al. (1986) found that children with ASD did not perform as well as “typical” children for social interaction and requesting behaviors. Additionally, they concluded that preschool children diagnosed with autism frequently demonstrate deficits with indicating behaviors, which suggests an inability to engage in joint attention. As a result, the researchers posit that children with autism may struggle with developing a concept of others as beings with “independent psychological states, such as interest in objects” (Mundy et al., 1986, p. 667). These challenges may also relate to deficits in affective or empathic contact – children with autism may often have a harder time understanding and responding to emotions (Mundy et al., 1986).

Moseley et al. (2015) describe that deficits in social interaction, and specifically emotion-based communication, may exist at the neurological level in persons with ASD. They discuss that individuals with ASD have “a pervasive deficit…extending to understanding emotions in vocal cues and nonverbal gestures” (p. 413). Using fMRI (functional magnetic resonance imaging) technology, researchers were able to study brain activity in participants with ASD as compared to “typical” participants. They found that when the participants with ASD read emotion words, they demonstrated significantly reduced brain activity as compared to other words such as animal names or abstract verbs.
like “dwell.” When compared to “typical” participants, the levels of brain activity for individuals with autism were about the same for animal names and abstract verbs, but were significantly less for the emotion words. Moseley et al. (2015) suggest that the “atypical processing of words semantically related to emotions” correlates with the expression of ASD traits (p. 414). Because of the differences in brain processes, students with ASD likely struggle more with social interactions.

Though there is much about ASD that is not understood, all of the existing research suggests that children with ASD are likely to struggle in the traditional classroom environment. However, since ASD manifests differently for each child, it can be very difficult for teachers to be able to understand and accommodate students in their classrooms. As a result, there is an inequality in education that puts students with ASD at a disadvantage, which suggests that there is a gap to be filled in education for supporting students with developmental disabilities. Due to the rising numbers of children being diagnosed with ASD, it is not likely that the issue will disappear any time soon. Therefore, this thesis will ultimately attempt to understand the role that dance can play to fill that gap, and will seek to better understand if dance can be a solution to the problem.

Learning Theories, Arts Education, and Implications for Students with ASD

Due to the rising constituency of children with Autism Spectrum Disorder and similar developmental delays, there has been a recent increase in the amount of research and literature available regarding the issue. Several learning theories have emerged in the literature that suggest that students with developmental disorders such as autism learn differently than “typical” children, and thus would benefit from accommodations in the
classroom. The following discussion will address major theories that have implications both in the general classroom as well as in an arts education environment.

Renowned Russian psychologist Lev Vygotsky is highly regarded for his sociocultural theory of development. In contrast to Piaget, Vygotsky does not offer a stage theory of development, but rather suggests that learning takes place throughout life and primarily through social interaction with others (Harwood et al., 2008). Additionally, Vygotsky offers a paradigm for special education that is not well-known in Western countries (Gindis, 1995). In his study of defectology, or “research and practice relevant to contemporary special education and school/educational psychology” (Gindis, 1995, p.77), Vygotsky reflects the social model of disability (Mertens et al., 2011). He argues that defects, whether they be physical, cognitive, or developmental, are not seen as abnormal until they are brought into a social context – problems do not occur because of physical or neurological impairments, but rather because of the resulting social implications (Gindis, 1995).

Vygotsky also created the theory of disontogenesis, or distorted development, to suggest specific learning implications for people with disabilities (Gindis, 1995). Though his theory encompasses many kinds of disabilities, both physical and otherwise, his paradigm is certainly applicable to students with autism. Gindis (1995) summarizes Vygotsky’s belief in a system of compensation through rehabilitation and development of higher psychological functions such as abstract reasoning, logical memory, and voluntary attention. All of the rehabilitation occurs through psychological and pedagogical methods, or in other words, through educating the child. In terms of learning theories, Vygotsky asserted that physical or mental defects can be “significantly compensated for
by creating alternative, but equivalent, roads for cultural development” (Gindis, 1995, p.79). Vygotsky argued that different tools for education, such as alternative methods of communication, may convey essentially the same meanings as verbal or oral communication, and that students need a differentiated learning environment to fully develop higher psychological functions and even personality. Within the unique and specialized curriculum, Vygotsky states that it is important to provide students with the skills to compensate for their particular disability, and to allow them more time to learn as well. Finally, he notes the importance of defining children by their strengths rather than their weaknesses (Gindis, 1995).

Vygotsky also maintains that “non-academic activities” including art and music may provide social learning opportunities for students with disabilities (Gindis, 2003). It is not unreasonable to assume that the arts have a place in Vygotsky’s concept of a differentiated curriculum, as the arts are generally recognized as an alternative means of communication. Furthermore, since Vygotsky states the importance of developing a special education setting to suit the needs of the student, it can be argued that the arts may provide a unique and valuable learning opportunity for students that otherwise struggle with traditional education.

Howard Gardner (1998, 2011) also presents a learning theory based on the idea of several distinct human intelligences that can be applied to both typical children and children with autism. Essentially, his theory posits that rather than having one “general” intelligence, there exist at least eight unique kinds of intelligences. Gardner (1998) states that some of the intelligences, such as the linguistic and logical-mathematical intelligences, are the traditionally regarded concepts of IQ; these are often the focus of
the typical classroom environment. Others, however, are slightly more unconventional and “do not always reveal themselves in paper-and-pencil tests” (p. 18). Though the traditional classroom does not always focus on fostering some of the alternative intelligences, Gardner claims that each of them can be foundational for more effective educational practices; they are a tool that can be used to achieve educational goals. The two major premises of the Theory of Multiple Intelligences (MI) are that every person possesses each of the intelligences, but strengths and weaknesses manifest differently for every individual (Gardner, 1998). Thus far, the eight intelligences Gardner (2011) identifies are naturalist, linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, and the personal intelligences (interpersonal and intrapersonal) (see Table 1), but he states that it is possible there are more.

Gardner (2011) describes linguistic intelligence as a comprehensive understanding of the core operations of language: meanings of words, the order of words, sensitivity to the flow and sounds of words (i.e. meter, inflection), and an understanding of the different functions of language (information, rhetoric, etc.). From a developmental standpoint, children from the age of three have the beginnings of a complex understanding of language and are able to convey meaning and ask questions. By age four, children tend to be fluent and sensitive to the intricacies of language (Gardner, 2011). However, it is important to note that there are individual differences within language development. Based on the above discussion of ASD, it is likely that some children with autism may struggle with developing this intelligence, particularly for children who are nonverbal. Therefore, it is important for educators to take individual
Table 1. Multiple Intelligences

<table>
<thead>
<tr>
<th>Gardner’s Eight Intelligences</th>
<th>Description</th>
<th>Examples</th>
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<tbody>
<tr>
<td>1. Linguistic</td>
<td>Comprehensive understanding and mastery of the core operations of language and its functions; poets, writers</td>
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<tr>
<td>2. Logical-Mathematical</td>
<td>Confrontation with the world of objects, the actions one can perform on them, and their relationships with other objects; mathematicians, scientists</td>
<td></td>
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<tr>
<td>3. Musical</td>
<td>Competence in composing, performing, listening, and discerning elements of pitch, rhythm, and timbre; composers, musicians</td>
<td></td>
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<tr>
<td>4. Spatial</td>
<td>Abilities to accurately perceive the visual world, modify or transform perceptions, and recreate visual aspects of experience; artists, sculptors</td>
<td></td>
</tr>
<tr>
<td>5. Bodily-Kinesthetic</td>
<td>Using one’s body in differentiated and skilled ways, for expression and other goal-directed purposes, including fine and gross motor skills; dancers, mimes</td>
<td></td>
</tr>
<tr>
<td>6. Intrapersonal</td>
<td>Internal ability to feel, identify, understand, and discriminate between one’s own emotions and guide subsequent behaviors; novelists, therapy patients</td>
<td></td>
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<tr>
<td>7. Interpersonal</td>
<td>Ability to notice, identify, and distinguish between the moods, temperaments, and emotions of others; politicians, therapists</td>
<td></td>
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<tr>
<td>8. Naturalist</td>
<td>“Recognizing and categorizing natural objects” (Gardner, 1998); biologists, naturalists</td>
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</table>

variation into account when developing curricula for children with different levels of ability. The arts can prove as a useful tool in that capacity; Gardner (2011) names the poet as “the user of language par excellence” (p. 103), which implies that artistic principles can be applied to foster linguistic intelligence.

Logical-mathematical intelligence, like linguistic intelligence, is often highly valued in the traditional Western classroom. Gardner (2011) relates logical-mathematical intelligence to “a confrontation with the world of objects” (p. 136) and the actions one can perform on objects. An important point in development manifests around age four or
five; the child progresses from simply knowing how to count to being able to apply counting to sets of objects. With counting comes the ability to compare groups of objects as well, which provides the basic foundation for mathematical calculations such as addition and subtraction. Gardner (2011) also mentions the relationship between math and science – scientists need mathematical concepts as tools for building and describing the world – which likely also relates to its significant emphasis in the classroom. However, note that previous researchers and educators (Moore and Linder, 2012; Bonbright et al., 2013) have successfully used dance integration to teach both mathematical and science concepts. Therefore, arts education should not be ruled out when discussing methods of cultivating logical-mathematical intelligence.

In his discussion of musical intelligence, Gardner (2011) names pitch (i.e. melody), rhythm, and timbre (the quality of the tone) as the central elements of understanding. He states that there is little research about the development of musical intelligence in children, but that children as young as two can both invent spontaneous songs as well as copy sections of familiar songs. Furthermore, Gardner (2011) mentions that some composers emphasize the importance of seeing music, whether by an orchestra or through dance. In addition to the music itself, Gardner also notes the emotional implications of music, stating:

[H]ardly anyone who has been intimately associated with music can forbear to mention its emotional implications: the effects it has upon individuals; the sometimes deliberate attempts by composers (or performers) to mimic or communicate certain emotions; or, to put it in its most sophisticated terms, the claim that if music does not in itself convey emotions or affects, it captures the forms of these feelings. (Gardner, 2011, p. 112)
Therefore, musical intelligence can lend itself as a tool to help children foster emotional development. Children that struggle with emotional concepts, such as those with ASD (Moseley et al., 2015), could benefit from music as a tool to elicit or name certain emotions. Interestingly, Gardner (2011) uses an example of a child with autism “who can barely communicate with anyone else…still, [she] exhibits an isolated sparing of musical intelligence” (p. 105). The child’s musical intelligence allowed her to communicate with her mother – her mother would call to her using melodies, and the child could respond in the correct octave and with the proper tone. The fact that musical talent is often also correlated with competence in mathematical skills and patterns (Gardner, 2011) implies that musical intelligence has value in the “traditional” classroom to enhance learning in other subjects. Based on Vygotsky’s framework for special education (Gindis, 2003), using elements of musical intelligence in the classroom could be an important tool for both defining children by their strengths as well as providing other methods for communication and learning.

Spatial intelligence, or the abilities to accurately perceive the visual world, modify or transform perceptions, and recreate visual aspects of experience (Gardner, 2011), is an intelligence that manifests largely in different forms of art education. Gardner (2011) speaks of visual artists as having strong spatial intelligence – they have the ability to perceive the world and translate that to canvas or sculpture. Though not always an area of focus in school curricula, the use of spatial concepts can be a tool for educators, especially for teachers of students in special education. For example, Gardner (2011) describes the case of Nadia, an adolescent with “severe autism, [who] was able as a very young child to make drawings of the most remarkable finesse and representational
accuracy” (p. 198). He describes her spatial intelligence as a strength that stands out from her other intelligences. Once again, using Vygotsky’s paradigm for special education (Gindis, 2003), it is important to be able to identify children’s strengths – such as Nadia’s spatial intelligence – and use those as a basis for further education. Therefore, though it is not always an area of focus in the classroom, it is important to recognize that spatial concepts can be of use in communicating with or encouraging students with autism.

Gardner’s (2011) description of bodily-kinesthetic intelligence is probably the intelligence most closely related to dance. He states that bodily-kinesthetic intelligence involves “the ability to use one’s body in highly differentiated and skilled ways, for expressive as well as goal-directed purposes” (Gardner, 2011, p. 218). These body movements include both fine motor and gross motor skills. Dr. Martha Eddy (2012) offers a theory of neuro-motor development that describes the ways in which children learn to move. She describes the stages of core-distal (whole body) movement, head-tail coordination (such as spinal articulation), symmetrical upper-lower body movements (moving just arms or just legs), right-left body half movements, and finally contralateral quadrants (such as walking while swinging the arms opposite the legs). All of the stages of development, which eventually result in a high bodily-kinesthetic intelligence, can be exemplified through dance. Gardner (2011) discusses dance at length in conjunction with bodily-kinesthetic intelligence. He states:

Dance can reflect and validate social organization. It can serve as a vehicle of secular or religious expression; as a social diversion or recreational activity; as a psychological outlet and release; as a statement of aesthetic values or an aesthetic value in itself; as a reflection of an economic subsistence pattern or an economic
activity in itself. Dance can serve an educational purpose… (Gardner, 2011, p. 235)

Gardner also discusses the link between dance and music, as well as the emotional component associated with the art form. For example, dance historically conveyed extreme emotions such as joy or grief, but in more modern pieces can also express more complex emotions such as guilt or remorse. Therefore, bodily-kinesthetic intelligence is not only inherent in the movements of all humans, but it also relates to both musical intelligence and the personal or emotional intelligences. As with musical intelligence, movement can help students that struggle with emotional interpretation or communication by giving them a different means of communication and expression. Thus, students with autism may greatly benefit from movement exercises that foster bodily-kinesthetic intelligence.

Based on much of the existing autism research, it is likely that Gardner’s (2011) personal intelligences are frequently a struggle for persons with ASD. There are two distinct kinds of personal intelligences. Intrapersonal intelligence concerns the internal aspects of a person – the ability to feel, identify, understand, and discriminate between one’s own emotions and to use that knowledge to guide subsequent behaviors. Gardner mentions that people like novelists or patients of therapy may often exhibit intrapersonal intelligence in the search for deep knowledge of their own feelings. Conversely, interpersonal intelligence is the ability to turn that knowledge outward – it is the ability to notice, identify, and distinguish between the moods, temperaments, and emotions of others. Political and religious leaders, parents, teachers, therapists, and counselors are examples of people who might exhibit high interpersonal intelligence. Regarding
development, Gardner (2011) discusses that from ages two to five, the use of symbols becomes instrumental for personal intelligences; pretend play is a significant aspect of social development. Recall that researchers such as Mundy et al. (1986) and Moseley et al. (2015) offer explanations for some of the deficits in communication and emotional intelligence exhibited by persons with autism; by applying their concepts to Gardner’s (1998, 2011) Theory of Multiple Intelligences (MI Theory), it makes sense that the personal intelligences may be an area of deficit for children with autism. Therefore, it is important for educators to not only be aware of that, but to structure curricula in a way that will allow students to develop and exercise the skills related with the personal intelligences (communication, emotion identification, etc.). As previously discussed (Mason, Thormann, & Steedly, 2004; Mele et al., 2008; Bonbright, et al., 2013), dance can be an effective method for enhancing communication and pro-social behaviors, so it is not unreasonable to assume that dance can be a tool used to cultivate the personal intelligences.

Gardner (1998) points out that many standardized intelligence tests only measure linguistic, logical, and sometimes spatial abilities, whereas the rest of the intelligences are essentially ignored. As previously mentioned, the traditional classroom often mirrors that trend as well, which leaves a large gap in education for both “typically” developing children and children with Autism Spectrum Disorder or other developmental disabilities. It is important to consider all of Gardner’s intelligences when designing curricula to ensure that each student’s strengths are accurately identified. Furthermore, MI Theory can be useful to understand the origins of some of the weaknesses that may manifest in certain children, and can be used as a starting point for approaching an individualized
education for each student. In a discussion about the intended audiences for MI Theory, Gardner (2004) states that it can be especially helpful for “students with learning difficulties (extending beyond reading problems to selective difficulties with…the understanding of other people)” (p. 213), and also students with attention deficit and hyperactive disorders, which are comorbid with ASD (Leitner, 2014). He also denotes the relationship between the arts and MI Theory, stating that “several of the intelligences have a distinctly artistic flavor” (p. 213). Therefore, MI Theory in conjunction with arts education (including dance) can certainly be a useful tool for educators of students with autism.

Yet another paradigm for special education stems from the Universal Design for Learning (UDL), developed by CAST, a nonprofit education and research and development organization (CAST, 2014). Hartmann (2015) describes UDL as a theoretical framework for learning that incorporates ideas from neuroscience, education, and technology, and is primarily concerned with improving both learning and access to general education. The central premise that fuels UDL is the concept of learner variability; every student has different abilities, needs, and preferences with regard to learning style that can be traced to the neurological level. Glass et al. (2013) state that there are four important lessons regarding learner variability: it is pervasive, it is normal, it can only be recognized and understood in context – it is heavily influenced by environment, and it is usually systematic and predictable. Therefore, it is possible to construct classroom lessons to account for learner variability. However, most general education curricula tend to be tailored to the “average” learner, which leads to a “narrow and inflexible curriculum” (Hartmann, 2015, p. 57). The rigidity of school curricula is
especially unfair for students with abilities that differ from what is considered to be average. UDL seeks to frame the inflexible curriculum as what should be fixed, rather than the remediation of the student.

As a student-centered framework, one of the driving assumptions behind UDL is that all students are capable of becoming “expert learners” (Hartmann, 2015). Consequently, it is up to the educators and institutions to ensure that students have access to learning and to help students develop a passion for lifelong learning. Expert learners are defined by three overarching traits that are related to the three major principles of UDL (see Figure 5). First, expert learners are resourceful and knowledgeable. The UDL principle to support resourceful and knowledgeable learners is to provide multiple means of representation (CAST, 2014). For example, for students with ASD who might have difficulty with verbal communication, the use of pictures or symbols while giving instructions can be a useful tool to engage them. Some students learn best with hands-on activities; providing students with tangible objects to explore and manipulate may also help some students to learn (Hartmann, 2015). These techniques are related to the recognition networks of the brain – the “what” of learning. Applying methods to maximize the means of representation in the classroom allows students more opportunities to gather and categorize facts, which is an important step in the process of mastering knowledge (Glass et al., 2013). Essentially, it is important to give students several opportunities to perceive, communicate, and comprehend information in the classroom; whereas some students may thrive in the traditional lecture-based classroom, other students need other means of representation to fully comprehend information (CAST, 2014).
Expert learners are also considered to be strategic and goal-directed. As such, it is important to provide them with multiple means of action and expression (CAST, 2014). A large part of this principle is allowing students to have varied opportunities and “options to act on and show what they know” (Hartmann, 2015, p. 59). Assessment is such an important and significant part of public schooling in this day and age, so it is important to allow students ample opportunity to accurately demonstrate their knowledge. This second UDL principle is associated with the strategic neural networks, or the “how” of learning; it relates to the part of the brain associated with planning and performing tasks as well as how people organize and express ideas (Glass et al., 2013). Not only should educators attempt to provide various options for physical actions and demonstrations of knowledge, but they should also encourage multiple opportunities for expression of knowledge (via multiple media such as writing, oral explanation, pictures, etc.) as well as options for executive functions such as goal-setting and strategic task planning (CAST, 2014).

Finally, expert learners are purposeful and motivated. To facilitate those traits, educators should provide multiple means of engagement for their students (CAST, 2014). Peer models have been shown to be a useful tool in this regard; pairing a student with a peer may encourage communication as well as stimulate interest in a subject (Stockall et al., 2012; Hartmann, 2015). Strategies for fostering engagement target the affective networks in the brain, or the “why” of learning. These networks help determine how learners stay motivated, and how they are challenged or excited by material (Glass et al., 2013). According to CAST (2014), it is important to recruit interest by allowing some level of choice or autonomy for students. Educators should also attempt to sustain effort...
through methods such as making goals salient, encouraging collaboration, and varying tasks to optimize challenge. Lastly, it is important for educators to provide options for self-regulation; facilitating coping skills, self-assessment, and self-reflection will be beneficial for students (CAST, 2014). Using techniques to maximize all three principles of UDL will help differently abled students and “typical” students alike to be more successful and confident in the classroom, and thus it can be applied to children with ASD to promote learning and positive student outcomes.

Though UDL principles are written for general education without being grade-specific, Stockall et al. (2012) suggest specific applications for a preschool environment. The authors suggest a focus on developing autonomy and independence so the students
gain a sense of self-direction, which is important during the formative years of education. Planning for a preschool curriculum should be executed before the school year begins in order to provide a range of options for students from the outset. The goals that educators set for their students should be based on appropriate benchmarks or standards, but there should be multiple pathways for the students to achieve those goals. As the previous discussion of UDL states, it is also important to consider individual student needs. The authors suggest creating a communication board with several pictures so that students can communicate their needs or wants. Peer models may also be especially useful in a preschool classroom. Stockall et al. (2012) briefly touch on the value of the arts as well, saying that educators should understand “the need for providing verbal, visual, and tactile input for the children and can give children opportunities to engage with the information through music, movement, or dance” (p. 13). Therefore, using the arts in addition to aforementioned techniques can make UDL both accessible and effective in a preschool environment.

Glass et al. (2013) discuss in detail the relationship between arts education and UDL, both in how arts education can employ UDL as well as what arts education can do for UDL in other subject areas. The authors state that using UDL techniques within arts classes can help to make them more accessible to all students, which results in more inclusive art. Additionally there are benefits to using art in other areas of education as well – “the arts can enhance our ability to respond to variability” (Glass et al., 2013, p. 107). The benefits of the arts can be applied to each of the three major principles of UDL. Regarding the first – multiple means of representation – Glass et al. (2013) discuss that the arts are by nature suitable for providing multiple options for perception, language,
and comprehension. Several art forms, including dance and movement, can be used to convey meaning, understanding, and emotion. In fact, the arts can be especially useful because they are “socially constructed representations of reality that use elaborated metaphor and narrative for thinking and feeling” (Glass et al., 2013, p.109). Since the interpretation of art is dependent upon the perception of the viewer as well as the context, Glass et al. (2013) state that involvement in the arts may be important for developing cognitive flexibility, or the ability to switch thinking strategies in different situations. Thus, applying the first principle of UDL by using the arts can provide students with multiple pathways for learning and understanding.

UDL’s second principle, providing multiple means of action and expression, can also be enhanced using the arts. Arts education lends itself to expression through different media, and thus its concepts can easily be applied to UDL in the classroom. Glass et al. (2013) use a contemporary dance class as an example; they discuss the potential to explore subjects (in this case, dreams) through dance. They describe the process of exploring the topic, choosing which movements to execute, choosing a piece of music to go along with the dance, setting short and long-term performance goals, and working toward achieving those goals. Each of the steps provides many opportunities for action, communication, and strategic and executive function, as outlined in the second UDL principle. Using gestures, movements, and kinesthetic metaphors rather than verbal or written speech gives students a medium of expression that would not otherwise be afforded to them in a “traditional” classroom (Glass et al., 2013). Based on Glass et al.’s (2013) evidence, it is reasonable to assume that the arts, and specifically dance, can be integrated into general education curricula to support UDL.
The arts can also be especially helpful in executing the third principle of UDL: providing multiple means of engagement. Glass et al. (2013) state that oftentimes, “the mere presence of the arts – and its wider opportunities – provide more options to recruit interest, sustain engagement, and develop self-regulation” (p. 113). Art is intimately linked with emotion, so it also provides students with the ability to recognize and regulate their own emotions as well. Since children with autism often struggle with emotional communication and identification (www.cdc.gov; Mundy et al., 1986; Moseley et al., 2015), the combination of UDL and arts education may be an effective way to help foster communication and emotional intelligence. Thus, “[t]he arts can contribute not only to the comprehension, application, and construction of knowledge but also to motivation, persistence, and self-regulation” (Glass et al., 2013, p. 114). Essentially, Glass et al. (2013) provides significant evidence that the arts have a substantial place alongside the UDL framework. Since each of the UDL principles can be achieved through various art forms, including dance, it could be extremely beneficial to include the arts in the general curriculum, especially for students with special needs such as ASD.

All of the aforementioned learning theories – Vygotsky’s disontogenesis (Gindis, 1995; 2003), Gardner’s (1998; 2011) Multiple Intelligences (MI), and Universal Design for Learning (UDL) (CAST, 2014; Glass et al., 2013; Hartmann, 2015) – can be synthesized and integrated into the typical classroom in order to help students with disabilities such as autism. Many of the central principles for each of the theories mirror each other; Gardner (2011) discusses different strengths that accompany each of the eight intelligences and states that every person is different, while UDL emphasizes the pervasiveness of learner variability, also stating that every learner learns differently
Applying both of those related concepts to Vygotsky’s theory of disontogenesis (Gindis, 1995) allows us to see that a varied curriculum is essential for equality of education. Both Vygotsky (Gindis, 1995) and UDL (CAST, 2014) stress the importance of varied opportunities for communication and a differentiated learning environment. Thus, UDL falls into line with Vygotsky’s paradigm for special education (Gindis, 1995) – viewing the student as a product of strengths rather than a sum of weaknesses will help educators to change their mindsets and to view inflexible curricula as the culprit rather than placing the blame on the students’ learner variability. All three of the learning theories also lend themselves to the arts – each can easily be integrated with arts education to provide support for students. Therefore, applying the concepts of all three learning theories in conjunction with one another and with arts education will likely be an effective approach to special education.

In addition to well-known learning theories, organizations that specialize in special education have also suggested arts education or arts-based therapies as possible interventions for helping students with ASD be more successful in the classroom and in other social settings. VSA Ohio provides insight and practical advice about ASD specifically for teaching artists. In their resource guide, VSA Ohio (2015) states that “creative experiences and activities can develop spontaneity, originality, and flexibility” (p. 10). They go on to suggest strategies for helping students with ASD to succeed in the arts-based learning environment. Environmental supports are the first step – for teaching artists who may visit a classroom during the week, it is important to make sure everyone understands classroom schedules and policies. Having visual supports in the environment such as schedules with both words and pictures can help students with communication
difficulties as well. VSA Ohio notes that peers may also be supportive; peer models can help and engage with students with ASD on their own level (VSA Ohio, 2015).

Along with environmental support techniques, VSA Ohio (2015) defines several simple strategies for teaching artists to consider when planning to go into a classroom. In order to address issues related to resistance to change, they suggest the importance of using a set schedule and defined time for individuals with ASD. They also note that being flexible is important – teaching artists are encouraged to have a “Plan B” in case the original plan does not work. Working relaxation or down time into the schedule is helpful as well, especially for students that may have a short attention span. Finally teaching artists should consider using visuals to present information and simplifying language – for example, attempt to provide “short and sweet directions” (VSA Ohio, 2015, p. 30). Ultimately, VSA Ohio aligns with all three aforementioned learning theories when it asserts that it is important for teachers and teaching artists alike to modify a “typical” curriculum in order to fully engage and support students with ASD – without modifications or necessary accommodations, students will struggle to be successful in the classroom. Based on the existing evidence, the arts, and specifically dance, can be a tool to provide the unique and engaging curriculum that will help all students, even those with ASD, to thrive.

**Autism and Dance/Movement Therapy**

The majority of the literature relating dance and autism is found within the field of health. Rather than looking at an educational setting, researchers instead investigate Dance/Movement Therapy (DMT) and its outcomes. DMT is often a one-on-one intervention between a therapist and a child, and therefore is regarded as a health
intervention outside of an educational setting. Since the field of DMT as an intervention for ASD is still in its emergent stages, there is currently limited literature available about the subject. In order to gain a better understanding of the topic, Scharoun et al. (2014) performed a review of the literature that focused on existing research in the field of DMT and autism.

Scharoun et al. (2014) state that DMT has existed as an accredited therapy since 1966, with the foundation of the American Dance Therapy Association (ADTA). ADTA defines DMT as “the psychotherapeutic use of movement to further the emotional, physical, cognitive and social integration of the individual” (Scharoun et al., 2014, p. 213). It is a holistic therapy that aims to benefit the whole person through improving motor skills, fostering the development of social relationships, and integrating sensory-motor systems. As such, it may address several of the aforementioned challenges of ASD. Unfortunately, the literature is lacking in terms of dance intervention for children with ASD, and though the use of DMT as an intervention for ASD began as early as the 1960s, the majority of the existing research is from the year 2000 or later. It is also not a commonly used therapy; the authors state that as of 2006, only 2.4% of children with autism engaged in DMT as a treatment, and there are not many treatment outcome studies that have been published about DMT for ASD. Koch et al. (2014) state that because autism is often classified as primarily a cognitive disorder, most therapies and approaches are cognitively based. However, some scholars suggest that a body-oriented approach is necessary because “due to their developmental and behavioral primacy the nonverbal interaction components compromised in autism are at the core of the impairment” (Koch et al., 2014, p. 338-339). They state that the three main points of entry for autism therapy
are in cognition, emotion (i.e. socio-emotional development), and the body (i.e. motor development), and since DMT can address both cognition and movement, it should be considered as a feasible alternative to cognitive therapies.

One of the main tenants of DMT as an intervention for ASD begins with the assessment of the child’s own developmental level and needs, and the subsequent adaptation of the therapy to suit the child’s individual pace (Scharoun et al., 2014). Since children with ASD often become distracted and are hesitant in new and unpredictable situations, the nature of DMT allows the child to become comfortable establishing a new relationship with the therapist. DMT also fosters the ability to stay on task and be attentive throughout the intervention. Props and music are often used in addition to movement – props can be less threatening than a stranger (the therapist) and allow the child to feel comfortable forming a new relationship indirectly, while music has been shown to help increase attention span and keep the child on task (Scharoun et al., 2014).

Mirroring exercises that stimulate mirror neurons are another major component of DMT. Bonbright et al. (2013) discussed that mirroring exercises can promote the development of an emotional connection and thus a healthy relationship between the therapist and the child. Some researchers suggest that children with autism may have impairments with the mirror neuron system in the brain, but that mirroring exercises can increase empathy and attunement (an interactional feeling of harmony or togetherness) (Martin, 2014). Koch et al. (2014) performed a feasibility study assessing the use of DMT mirroring intervention as a therapy for ASD. They found that compared to a control group, young adults who participated in DMT mirroring exercises “improved body awareness, self-other awareness, psychological well-being, and social skills” (p. 345).
Scharoun et al. (2014) also discuss specific pieces of literature that emphasize how the stimulation of mirror neurons allows children to visualize how their own bodies look and move, and also how “mirroring improves social skills, such as interpreting facial expressions, and establishing relationships with others” (Scharoun et al., 2014, p. 217). The authors list several examples of case studies in which specific children with autism were positively impacted by DMT. Though the literature is limited at this point in DMT’s history, the evidence that currently exists is overwhelmingly positive. Therefore, DMT can be cautiously interpreted as effective for autism intervention.

Though most of the existing studies involving DMT as autism therapy examine elementary-aged children or young adults, there as been some research investigating whether DMT can be successful in early childhood as well. Mary Martin (2014) suggests that since the literature provides evidence that motor development and socio-emotional development are interrelated, and that both are challenged early in life in children with ASD, DMT can be an effective therapy in early childhood. Martin (2014) states that since “DMT provides a holistic approach that integrates the body and mind, and because it can thrive in the non-verbal realm of communication, this type of therapy is extremely appropriate for the early intervention of children on the autism spectrum” (p. 548). She provides a theoretical framework for DMT in early childhood as an autism therapy, focusing on mirroring as a tool to develop social connectedness. Her framework begins with the establishment of safety and regulation, which is determined by the individual needs of the child. (Once again, this is reminiscent of the learning theories discussed in the previous section.) It is important to have an understanding of how the child communicates in order to ensure they feel safe and secure. The second phase of her
framework consists of building connection and engagement with the child; this may take place through activities like mirroring. Phase three involves developing body awareness and motor coordination to ultimately create a theory of body; Martin (2014) states that having an understanding of one’s own body and self is necessary for the development of more advanced social skills. The fourth and final phase facilitates rhythm and timing, which can advance to the development of turn-taking skills and back-and-forth motions (e.g. rolling a ball). The back-and-forth motions mimic the nature of conversation, which can ultimately stimulate communication (Martin, 2014). Using Martin’s (2014) theoretical framework, it is certainly possible to use DMT as a therapy for preschool-aged children with autism. However, it remains to be seen if DMT principles would be successful in a public education setting.

Despite the lack information in the literature regarding DMT as well as dance in special needs preschool classrooms, there have been some specific cases that have applied the principles of DMT to an educational setting to find successful results. A case study performed by Thom (2010) investigated the use of DMT in a typical classroom setting. Though her case was not specific to children with ASD, it is important to understand whether or not DMT can be applied in a classroom setting at all before attempting to use its principles in a special needs environment. Thom (2010) discussed that in a preschool classroom, students at the beginning of the year often were unable to effectively regulate and express their emotions, and they had trouble working together (e.g. they were unable to form a single-file line without bumping into one another). As an attempt to stimulate socio-emotional development and body awareness, Thom (2010) employed the principles of DMT. She utilized creative movement activities such as yoga
poses and games like “emotion charades” over the course of the school year. She found that after seven months, students were better able to recognize and purposefully display emotions (i.e. stomp like you are angry, pretend to be sad, etc.). They were also better able to work together to complete tasks like lining up to go down the hallway, and they could work as a group to complete sophisticated movement exercises. Through the use of DMT in a typical preschool classroom, Thom (2010) enabled the students to improve their socio-emotional development and classroom behaviors, thus making a case for using DMT and creative movement in the classroom.

Scharoun et al. (2014) also discuss a number of cases of group DMT for children with autism. Most studies exhibited results similar to those of the one-on-one cases. For example, one case of 38 five-year-olds showed that after two months of DMT therapy twice per week, the children showed a greater number of attentive behaviors, decreased stress behaviors (i.e. resisting the teacher, wandering, etc.), and increased passive on-task behaviors. Other group studies (two or more children) demonstrated that group DMT improved communicative behaviors, movement, and social behaviors (i.e. group cohesion, respect and turn-taking), and decreased tuning out and aggressive outbursts. In short, DMT has been shown to be successful both in group settings of children with ASD as well as in typical classroom settings. The literature therefore implies that the principles of DMT could be applied in a public school (group) setting to reach a greater number of children with ASD and provide positive results in socio-emotional and motor development. This thesis will attempt to synthesize DMT and dance education in early childhood to understand what effects dance may have on preschool children with ASD.
Limitations of the Existing Literature

Though the existing literature appears to make a case for the benefits of dance in special needs classrooms, there are several limitations to be aware of. For example, much of the research is anecdotal and not empirically rigorous. Though several case studies exist promoting the benefits of dance in the classroom in both typical and special needs settings, most have not been replicated, and many do not employ scientific methods. It is also important to note that the field under investigation is still emerging; at this point, research is extremely limited. Because most of the literature comes from the past 15-20 years, there has not been significant opportunity for longitudinal studies. Therefore, researchers still do not fully understand the potential long-term effects of the use of dance in schools for children with ASD. There is also not a lot of research regarding the use of dance for children with ASD specifically in an educational setting. It can perhaps be inferred from the research that such endeavors may be successful, but there is not a specific, empirical study about dance programs in that particular environment. Most research is through the lens of DMT, and thus not much is known or suggested about other kinds of movement programs. Finally, because scientists do not fully understand the nature of autism on a neural level, many of the existing studies focus on symptoms rather than underlying causes of autism. It will be difficult for researchers to explain specific effects of dance on children with autism until the disorder is more fully understood. This thesis will attempt to begin to fill the gap in the literature and use a mixed-methods approach to gain an empirical understanding of the potential impact of dance for preschool children with ASD.
Chapter 3: Methodology

My Worldview

As a researcher, I am primarily a postpositivist. Based on my worldview and my training in psychology, it is likely that I will always have similar values to those of postpositivism. In my experience, quantitative researchers in the social sciences want to be positivists – they want to find the scientific “truths” and generalizations regarding human behaviors. The use of the scientific method allows human subjects research to be as positivist as possible. However, since animals (i.e. people) are unpredictable, it is essentially impossible to be truly positivist when studying them. There will always be exceptions to whatever rules and theories researchers try to construct.

In some sense, I am also an interpretivist. I accept that my reality is my own and can only be known by me, since I am the only one living it. Reality is based on perception, and it is impossible to analyze others’ perceptions without using my own lens. I fully believe that there are no truths that always hold true in every single situation, especially with living human beings. Yet I still think that in order to avoid succumbing to complete chaos, it is important to operate under assumptions of generalizations. People are not always predictable, but we should be able to function based on general heuristics or assumptions to make situations manageable. Therefore, I straddle the line between being postpositivist and constructivist.
Based on the idea of ontology, which Denzin & Lincoln describe as the “worldviews and assumptions in which researchers operate in their search for new knowledge” (2011, p. 102), I definitely fall into a postpositivist framework. Since no two people are exactly the same and there will inevitably always be variables that cannot be controlled, then the best researchers can do is get kind of close to the “truth.” Along those lines, I am also a relativist – each human constructs his/her own reality based on his/her own experiences and perceptions. To me, these two are not mutually exclusive. I also fully subscribe to critical theory and the idea that oppression comes from imbalances of power. However, since I am not looking into a group because they are oppressed, critical theory does not come out as much in my research. I believe, instead, that critical theory is helpful to me in terms of being aware of the power differences between myself and my “subjects.” Acknowledging those power differences helps to make me more objective.

In terms of epistemology, I once again conform to both postpositivism and constructivism. Statistics are useful to approximate the nature of reality, and they can give some clarity to situations that are otherwise hard to interpret. However, I do not necessarily think that “interaction with research subjects should be kept to a minimum” (Denzin & Lincoln, 2011, p. 103). Even if the researcher has data in terms of numbers, that knowledge cannot be separated from the knower. Though objectivity may not be as valid with emphasis on interactions between researcher and subjects, in some cases subjectivity may help to approximate this elusive “truth” that positivists are always trying to determine. Therefore, there is importance in each of the kinds of methods, and I draw from both of those paradigms in my research.
Regarding the inquiry aims of each paradigm, I strongly agree with the postpositivist framework. Research should get as close to reality as possible, even though it may never quite get there. Whose reality depends on the research subjects, and therein lies the constructivist approach. Guba states that the inquiry aim of a constructivist is to “fill the gaps between theory and practice” (Denzin & Lincoln, 2011, p. 106). Therefore, theory can come from postpositivism, while constructivism can be the catalyst for change. Both are important for my ultimate research goals, and both influence how I approach and interpret my study.

Paradigm: Mixed Methods

Coming from a background in quantitative research, I was always taught that it is important to conduct research using the scientific method and emphasizing statistical significance. In my experience, quantitative methods help create research studies that are as internally and externally valid as possible. With the scientific method, it is possible to attribute causation to whatever it is that the researcher is studying, and it should be possible to replicate the study with a different group of participants to achieve the same results. Quantitative research, often associated with the scientific thought of the Enlightenment, emphasizes objectivity and neutrality, and it boasts of “truth” – however naive it may be (Denzin & Lincoln, 2011). In my experience, I have found that quantitative research is often spoken of as the “gold standard” in research, and it is viewed as credible and believable. As a postpositivist, I am comfortable with the scientific method, and I agree that it is a “good” way to structure research.

In more recent years, qualitative research has been gaining credibility and respect, especially in areas where “data” does not easily transfer to numbers. The scientific
method is appropriate for elements of nature, but humans do not always function or act as predicted. Egon G. Guba points out the while scientific methods are important in the physical world, “it is simply irrelevant in the arena of human inquiry, for in that arena there is no tangible reality” (Stringer, 2013, p. x). The scientific method is valuable for physical reality, but humans do not always conform to rules the way that nature does – we each construct our own reality based on interaction and perception. As a constructivist, I believe in the value of hermeneutical discussion. Especially if I am trying to understand a reality that is not my own, it is important to have dialogue with the people who do share that reality and construct the “truth” as a collaborative process. Therefore, qualitative research provides an important aspect of research that quantitative methods may not always be able to analyze.

Because I find value in both quantitative and qualitative methods, my approach involved a mixed methods paradigm. Charles Teddlie and Abbas Tashakkori define mixed methods as “the type of research in which a researcher... combines elements of qualitative and quantitative research approaches... for the broad purpose of breadth and depth of understanding and corroboration” (Denzin & Lincoln, 2011, p. 285). The idea of methodological eclecticism is appealing, especially in areas where the data is not exclusively numerical. It allows the researcher to pick and choose aspects of both qualitative and quantitative paradigms “on the ground that this promises to cancel out the respective weaknesses of each method” (Denzin & Lincoln, 2011, p. 285). The mixed methods approach allows for a rigorous data collection process with many types of data analysis to provide a more complete understanding of the research problem. Since I have access to both quantitative and qualitative data for analysis, mixed methods is the
strongest, most comprehensive approach for my particular study. Having the quantitative aspect of the research will allow skeptics (traditional positivist scientists) to see that my results are valid, and having the qualitative part will provide deeper insights into why the results exist.

Methods

Note: to ensure confidentiality and protect participant privacy, I have not reported names of the school, the classroom teacher, the teaching artists, the ballet company, the program, or the children in my final report. All names written here are pseudonyms.

The primary focus of my research is a single preschool classroom in an urban elementary school in a mid-sized Midwestern city. The classroom itself is an inclusion classroom, meaning that some children in the class have developmental disabilities, while other “typically” developing students in the class serve as peer models. The classroom teacher, “Amy,” had previously agreed to work with the professional ballet company that delivers the “Dancing for Development” program. As part of the program, two teaching artists and one accompanist came into the class once a week for thirty minutes at a time to give the children a creative movement class. “Amy’s” class received a ten-week program, so the education staff from the professional ballet company taught a total of ten half-hour classes. In “Dancing for Development,” the teaching artists collaborate with the classroom teacher to focus on and supplement concepts that the students learn about in class. For example, if the classroom teachers have a certain book they would like the children to read, the teaching artists may use that as the core of their lessons. Typically, the teaching artists begin class with a locomotor warm up traveling around the dance space, move into a seated stretch, and then present the content as agreed upon with the
classroom teacher. The dance space itself can range from a gymnasium or cafeteria to the classroom with desks and chairs moved to the sides of the room to provide an open space for the children to move around safely. For “Amy’s” class, the dance space was the gymnasium.

My research takes the form of a mixed methods case study. Creswell (2013) describes specific procedures for conducting a case study and how to determine whether or not a case study is appropriate for the intended work. Based on the fact that I had a bounded system available to me (“Amy’s” inclusion class that received “Dancing for Development” beginning in January), a case study was not only appropriate for my research intentions, but also feasible to complete in the time I had. In choosing the specific case, I used what Creswell (2013) calls critical case sampling, which “permits logical generalization and maximum application of information to other cases” (p. 158). In other words, my hope is that other researchers will see similar results with similar movement programs in similar classrooms.

The sampling process for my study was relatively simple. The ballet company does all of the scheduling related to the “Dancing for Development” program – it determines the classes that will receive the program as well as the teaching artists that deliver it. The urban elementary school had two classrooms of special needs pre-kindergarten students – one in the morning, and one in the afternoon. The afternoon class of students had already agreed and contracted with the ballet company to receive “Dancing for Development” for ten weeks beginning in January. Given my own schedule, “Amy’s” class was the only inclusion “Dancing for Development” class that I could attend, so I reached out to her to discuss my research project. After speaking with
the school’s principal, the classroom teacher “Amy,” and both of the teaching artists assigned to the school (“Leslie” and “Susan”), they all agreed to sign consent forms to be observed and interviewed for my research. I also sent the classroom teacher a copy of the permission form and study information (supplementary to the ballet company’s permission forms and program information), and she distributed those forms to the parents to earn necessary consent.

“Dancing for Development” began in my intended classroom of study in the first week of January, so my official observations also began that day. The “Dancing for Development” program for “Amy’s” class lasted for ten weeks. Therefore, accounting for holidays and professional development days, the program ended in the third week of April. Throughout that time, I attended every class to observe and take field notes. I also had one meeting with teaching artists during the program, one meeting with the teaching artists after the program ended, and one meeting with the classroom teacher after the program ended to ensure we were all still on the same page and to get extra information about the students’ progress either in the program itself or in school in general.

The research intervention itself was primarily documentation of a program that took place with parental consent and child assent. During “Dancing for Development,” the children were invited to participate in the movement activities, but if they made it clear that they did not want to participate (they sat down, shook their heads, cried, etc.), then they were not forced to. Parents had to sign a consent form to allow their children to participate in “Dancing for Development,” so an additional permission slip was sent to the parents for consent to be included in the research process. I did not have any interactions with the students outside of observing the program. Thus, the only additional
process the research intervention added to the pre-existing “Dancing for Development” program was dialogue with the teachers and the teaching artists and recorded observation of the movement program. Therefore, there was minimal risk associated with my research.

In my first meetings with the teaching artists and classroom teachers, I made sure that my participants knew that they had the option to decline to participate without consequence. They were thoroughly and comprehensively informed about the research process, what information was documented, and how the information would be used. They were also informed about my end goal for the process and what I hope to have an impact on. I was transparent and disclosed all relevant and necessary information before asking for consent, thereby minimizing risk in the interviews as well.

Data Collection Procedures: Field Observations

The bulk of my personal data collection took place in each “Dancing for Development” class. I attended every class meeting to observe the students and the teachers in the classroom. As I observed, I took notes about occurrences that correspond to my research questions: primarily motor development, socio-emotional development, and cognitive development. I had movement rubrics to guide my observations, and using respected measurement tools such as the Socio-Emotional Assessment/Evaluation Measure (SEAM™) (Squires et al., 2014) and Developmental Checklists ages Birth to Five (Mid-State Early Childhood Direction Center, 2012), I identified specific operationalizations of socio-emotional and cognitive outcomes (students had the correct answer to the question “how many legs does a dog have” or student smiled/made eye contact with teacher 5 times during class, etc.) that might be observable in the classroom.
Based on some of the items on the aforementioned checklists, I created my own Observation Key (see Appendix A) as a sort of “cheat sheet” that I could use to guide my observations. I also referred to Brownell et al.’s (2015) observational methods for measuring socio-emotional development. For example, I primarily recorded sequences of behavior for different children, and I also utilized focal-child or scan sampling, where I watched a single child for a specific amount of time, and then watched another child for the same amount of time, etc. My field notes were structured so that I could specifically address each of my research questions, with an extra section for me to note any additional observations. The notes are dated and organized by class, so that I essentially have a chronology of the “Dancing for Development” program.

The classroom I worked with was an inclusion classroom with both “typical” peer models and students with special needs. There were a total of seven peer models – five boys and two girls – and eight students with special needs – seven boys and one girl – for a total of fifteen children in the class. Essentially, the peer models served as my built-in control group. I was able to directly compare the development of the students with special needs to the typically developing students in order to assess whether or not the program works differently for each group.

Data Collection Procedures: Qualitative Interviews

In addition to my own observations, I also conducted interviews with different stakeholders throughout my research process (see Appendix B for interview transcripts). The first group was the ballet company’s teaching artists. I met with them prior to the beginning of the residency to wholly inform them of my research, to debrief them on some of the things I hoped to find, and to acquire informed consent. Additionally, I
conducted an interview during the 10 weeks of the program. That helped me to see if they noticed similar things to what I noticed, and to see if they saw some things that I missed. I asked them to compare this classroom to their past experiences, both within special needs classrooms and in typical classrooms. Finally, I conducted an interview after the program ended to let them know what I observed and see if we are all on the same page. I kept in touch with both the teaching artists at the ballet company as well as the ballet company’s Director of Education throughout my writing process to make sure I was representing everyone authentically. These qualitative interviews served to enhance my own field notes and provide extra insight from a working teaching artist’s perspective.

I also conducted a similarly structured interview with the classroom teacher. Due to time constraints, I only conducted one interview after the program ended. The classroom teacher had important knowledge about how the children were doing in school outside of the “Dancing for Development” program, and she was able to shed some light on issues such as the cognitive and socio-emotional components of the program. Since the classroom teacher spends more time with the children than the teaching artists do, she was able to provide me with different information that I would not have been able to get otherwise. Therefore, that was a necessary component to a rigorous, well-rounded study.

Data Collection Procedures: The Ballet Company’s Evaluation Materials

As I have mentioned before, the ballet company that delivers the program collects data on every classroom that hosts “Dancing for Development” as part of their yearly program evaluation (see Appendix C). I received permission to get copies of this data for the purposes of my research, and that serves as the quantitative aspect of my data collection. Since the ballet company lists the goals of the “Dancing for Development”
program to be in cognitive, motor, and socio-emotional areas, they collect information on each of those aspects of development for each child in each classroom that receives the program.

The first kind of quantitative data that I received was in the form of movement rubrics that analyze motor development. (Due to copyright protection, I do not have the permission to publish the rubric in this document.) The rubrics list a number of kinds of movements (e.g. breath, core-distal, cross-lateral) with examples of each kind of movement on the left-hand side, and the teaching artists can record that a child “Tries,” “Completes,” or “Exceeds Expectations” for each of the listed movements. In a 10-week program, rubrics are completed at weeks 1, 4, 7, and 10 to give an accurate idea of overall trends of motor development. With the movement rubrics, I can see both individually and on a classroom-wide scale whether or not students were able to improve their motor development after participating in “Dancing for Development.”

The ballet company also sends home parent pre- and post-surveys that analyze how the parents feel about the use of dance in the classroom and how much they value dance/movement in general. This helped me to have at least a minimal understanding of what the parents think about the program, and whether or not their opinions of dance changed as a result of their children participating in “Dancing for Development.” The surveys also allowed me to develop a very basic scale for “parent support,” so that I could investigate whether or not the parents’ impressions of dance were a factor in the children’s development.

The ballet company requires that the teachers fill out pre- and post-surveys about how they think they can use dance in their classrooms, and whether or not dance can help
students in other academic areas as well. The surveys also ask the classroom teachers about their own level of comfort in using dance in the classroom, and whether or not they think they would be likely to use it on their own. Most importantly, the surveys ask the teachers how much of the change in development in their students they attribute to their students’ participation in the “Dancing for Development” program.

Finally, the ballet company asks the classroom teachers to fill out pre- and post-surveys about each of their students individually. Items on these surveys measure things like socio-emotional development (“This student manages feelings appropriately,” “Recognizes feelings in others,” etc.) and cognitive development (“Describes, compares, sorts, classifies, and orders,” “Makes predictions,” etc.). Since the classroom teachers spend more time with the students in an academic setting, these surveys are helpful to quantitatively measure growth in socio-emotional and cognitive abilities. These student surveys and the movement rubrics are the quantitative data components that I analyzed the most rigorously.

**Analysis Plan: Field Notes and Observations**

Based on the chronological nature of my field notes, I looked at them primarily to see what differences there were at the beginning and the end of the program. I identified several trends that emerged throughout my visits to the school. Most trends were in the realm of my research question areas – motor, socio-emotional, and cognitive development. I certainly looked for improvements in each of those areas, but it was also important for me to recognize if there were any students who did not experience gains throughout the program. Because any results I found directly related to the implications
of program delivery, I was critical as I analyzed my field notes in search of overarching themes.

*Analysis Plan: Qualitative Interviews*

Once again, the most important part of analysis of the interviews was the identification of trends. I compared the topics of conversation that occurred in my interviews to my own field notes to look for similarities. I also constantly compared my qualitative data to the literature to see if what I found was reflected in the studies that already exist. The interviews themselves also served as data analysis – the teaching artists and classroom teachers helped me go over what I saw during the classes and discussed what my observations meant and any implications that might go along with them. Since I am more interested in the influences of the program on the children, I did not see a need for other measures such as language analysis during the interviews.

*Analysis Plan: Quantitative Data*

In order to analyze the quantitative data I received from the ballet company, I primarily used simple statistical methods. In the ballet company’s program evaluation, they usually present the data in terms of before and after percentages – x% were able to complete the movement during week one, while y% could complete the movement during week ten. I used that kind of general analysis, but I also employed t-tests and ANOVAs to see if those percentage differences were statistically significant. That way, my quantitative analysis goes a bit more in depth than the yearly program evaluation. I analyzed the surveys to see if there was any growth in cognitive or socio-emotional development as well. I must note that the class and thus the sample size was small, so the
statistics would be stronger or more believable with a larger sample size, but due to time and resource constraints, this thesis approached the issue on a smaller scale.

A second approach I was able to use was the difference in differences statistical test. Since I calculated the percentage difference of students who completed movements during week one vs. week ten, I was able to compare the two groups’ data to see if there were statistically significant differences in the students with special needs and the peer models. That method provides insight on whether the program works in the same way for children in a special needs class, and thus will allow me to consider the implications that go along with my study.

Though the sample size was small and not necessarily linear, I also employed multiple regression analysis to account for variables such as attendance and level of parent support. Due to the nature of the sample, this was primarily an exploratory analysis to see how future studies might use the information, and also to provide some insights for developing a future statistical model to analyze data such as the movement rubrics and the socio-emotional and cognitive information.

For each piece of quantitative data, I coded it for whether the child was a peer model or a student with special needs. I was then able to directly compare those groups to one another to see if there were differences in motor, socio-emotional, or cognitive outcomes between those groups. The peer models provided me with a valid control group for my data analysis – there was a significant level of statistical control since the children were all in the same class receiving the exact same program. The inclusion of a control group helps my research to be more internally valid, and will strengthen the credibility of the statistics as well.
A holistic analysis of all of my data gives me a much more complete picture of the program than simply using either a solely qualitative or solely quantitative approach. Taking the field notes and interviews in conjunction with the statistical analysis provides a much more detailed picture than one method or the other by itself. It is also interesting to investigate whether the statistics explain something different than the qualitative analysis. Putting all of the levels of data together is an important way to understand the narrative of the program in its entirety, and provides me with a much better idea of how to move forward to start work on my dissertation.
Chapter 4: Quantitative Data Analysis

In order to quantitatively assess the socio-emotional, cognitive, and motor development of the children in the “Dancing for Development” program, I relied primarily on the ballet company’s yearly evaluation materials. The pre- and post-student surveys (see Appendix C), filled out by the classroom teacher before the program started and at the end of the program, address measures of socio-emotional and cognitive development. I separated the items on the survey into “socio-emotional measures” (8 items) and “cognitive measures” (14 items), and totaled each of the categories to form a socio-emotional and a cognitive index for each child.

Movement rubrics documented the motor development for each child. I assigned points for categories describing their ability to complete a certain kind of movement (1 point for “Tries,” 2 points for “Completes,” and 3 points for “Exceeds Expectations”). Due to some inconsistencies in inter-rater reliability, I converted each child’s total score into a percentage to standardize the scores. I was then able to calculate the percent of movements completed during the first observation for each child as well as the last observation.

I also kept track of attendance, so each student received an “attendance score” based on the number of “Dancing for Development” sessions for which they were present, with scores from 1-10 possible. The students in the class ranged from 5-10 total days present. Additionally, I used the pre-parent surveys (see Appendix C) to come up
with a measure of “parent support.” Surveys were based on Likert-scale questions on a scale of 1-5, so for each survey, I totaled the scores for each question and divided that parent’s total score by the highest possible score the parents could have given (55 – the highest score of 5 times the total of 11 questions on the survey). Since the questions on the parent survey asked primarily about how much the parents believed dance/movement was important in school and in life, a high percentage indicated high parent support for the program – the parents initially believed that dance is valuable. A low percentage indicated lower parent support – they were skeptical as to the value of the program. Support ranged from low (29%) to very high (98%). Specific items from the teacher surveys (see Appendix C) were included as a reference for how the classroom teachers thought the program influenced the students’ development. Finally, all student information was coded for age, group (peer models or students with special needs), and in the case of the movement rubrics, which teaching artist recorded their development.

Socio-Emotional Development

To measure whether or not there was a difference in socio-emotional development before and after the program, I first looked at the class in aggregate. I ran a t-test assessing the difference between pre- and post-scores for the whole class, and found that the post scores were statistically significantly higher than the pre-scores for socio-emotional development ($t = 4.3409, p < .0049, \alpha = .05$). When the groups were separated and analyzed independently (peer models and students with special needs), the results also showed a statistically significant difference in the pre- and post-scores (post > pre). For the students with special needs, the difference appeared slightly more significant ($t =$ ...
6.1355, p < .0005, \( \alpha = .05 \) than the peer models (\( t = 4.3409, p < .0049, \alpha = .05 \)). Yet for both groups, we can reject the null hypothesis that the pre- and post-means were equal.

In order to determine whether the amount of growth was different for each group of students, I also performed a difference in differences t-test. I subtracted the pre-survey score from the post-survey score to obtain a difference score for each child. I then ran a t-test comparing the difference scores by group (peer models vs. students with special needs). The average difference scores were statistically significantly different from one another (\( t = -3.0608, p < .0091, \alpha = .05 \)) (see Figure 6). Since the t-test subtracted the students with special needs’ average from the peer models’ average and the test statistic was negative, that suggests that the difference score, or growth measure, for the students with special needs was greater than that of the peer models. In other words, though both groups experienced significant growth in socio-emotional development, there was significantly more growth in the students with special needs, suggesting that the program was especially helpful for them in that regard.

Figure 6. Socio-Emotional Development – Quantitative
Though the sample size was small, I decided to run an exploratory multiple regression model to see if there were other factors that might have influenced socio-emotional development. Using the socio-emotional difference scores as the dependent variable, I included group (peer models or students with special needs), age, attendance, and the pre-parent support score to see if any of those variables had an impact on socio-emotional development. The r-squared for the model was 0.4553, suggesting that approximately 45.53% of the variation in socio-emotional growth was due to the regression model. However, only the coefficient for group was significant (coefficient = 6.58, t = 2.62, p < .026, α = .05), suggesting that based on this model, age, attendance, and parent support do not influence the growth in socio-emotional development. It is important to note that since the sample size was small, there may not have been enough variation to uncover the “true” impact of those variables based on the given measures and their relation to the dance program. Future research with a larger sample size would help to clarify the issue.

In the teacher post-surveys (see Appendix C), the teachers were asked how much of their students’ growth was due to participation in the “Dancing for Development” program. The classroom teacher for the students with special needs stated that she believed 50% of the growth in socio-emotional development was attributed to the dance program, and she also stated that she was 100% confident about the accuracy of her answer. The teacher that filled out the surveys for the peer models stated that she was 100% confident that 100% of the growth in socio-emotional development was due to the dance program. It seems that the teachers do, at least on some level, believe in a causal relationship between participation in the dance program and socio-emotional growth.
Based on all of the above information, the quantitative analysis for socio-emotional development suggests that both groups of students grew significantly, but that the program was possibly even more effective for the students with special needs. Since both teachers believe that at least some of that growth was due to the students’ participation in the program, we can reasonably assume that in general, socio-emotional development is positively impacted by the “Dancing for Development” program.

Cognitive Development

I approached the quantitative analysis for cognitive development in the same way that I did for socio-emotional development. First, I examined the group as an aggregate. Using a t-test, I analyzed whether or not the average post scores were different than the pre-scores for the whole group. Once again, I found that the post-scores were statistically significantly higher than the pre-scores for cognitive development (t = 5.5317, p < .0001, α = .05). Thus, as a whole group, cognitive development improved significantly from week one to week ten of the “Dancing for Development” program. To see if that trend held true for each group individually, I ran two more t-tests – one for each group (peer models and special needs students). Both of those also showed a significantly higher post-score for cognitive development, but in this case, the peer models showed slightly higher significance (t = 5.7608, p < .0012, α = .05) than the students with special needs (t = 4.5535, p < .0026, α = .05). Thus, for both groups of students, we can again reject the null hypothesis that there was no difference between the pre- and post-scores for cognitive development.
To measure potential differences in cognitive growth between the peer models and the students with special needs, I again calculated difference scores (post-score – pre-score) for each student and ran a t-test to compare the difference in growth for each group. Though it neared significance, this test was not significant with an alpha level of .05 (t = -2.0552, p < .0605, \( \alpha = .05 \)), which means that we cannot reject the null hypothesis that the growth in the two groups is equal. In other words, though there was significant growth for both groups, it does not appear that cognitive development was influenced differently in one group versus another (see Figure 7).

**Figure 7. Cognitive Development - Quantitative**

![Cognitive Development Graph](image)

I decided to run another exploratory multiple regression model for the cognitive difference scores. This time, I used group, attendance, and the pre-parent support scores as my independent variables. The r-squared value was .5055, which indicates that approximately 51% of the variance in the cognitive difference scores is due to the regression model (a closer approximation than I had for the socio-emotional model).
Interestingly, in this model, both group (coefficient = 12.51, p < .018, \( \alpha = .05 \)) and attendance (coefficient = 3.36, p < .044, \( \alpha = .05 \)) were significant, indicating that attendance and the student group both had an impact on cognitive development. This slightly contradicts the t-test, (which neared significance but was not significant when \( \alpha = .05 \)) which implied there was no difference between the groups. However, it also suggests that while attendance did not seem to be a factor in socio-emotional development, it did impact cognitive development. In this case, there are enough confounding variables that we can only assume correlation rather than a causal relationship between participation in the dance program and cognitive development, so perhaps attendance in school in general is what had a significant impact on the cognitive piece.

Finally, I referenced the teacher surveys once again (see Appendix C) to see how much the teachers thought the program impacted cognitive skills. According to the special needs teacher, about 30% of the growth in executive functioning/cognitive skills was attributed to the “Dancing for Development” program; the classroom teacher was 100% confident about the accuracy of her estimate. The teacher that evaluated the peer models attributed 100% of the growth in executive functioning/cognitive skills to the dance program, and was also 100% confident about the accuracy of her estimate. After seeing that the peer models’ teacher thought that both socio-emotional and cognitive growth was entirely due to the participation in the program (and not to the fact that the students are in school for the rest of the week as well), I had to note that her estimates may not be entirely correct (despite the fact that she was 100% confident about the accuracy of her estimates). I think it is more likely that she really enjoyed the program
and wanted to express that in the survey, so perhaps her estimates are not entirely reliable.

Based on all of the above data, it appears that the students’ cognitive development was positively correlated with participation in the “Dancing for Development” program, regardless of which group the students belonged to. It also appears that attendance had an effect on their cognitive development as well. Since there was not a control group that did not have the “Dancing for Development” program, I cannot determine how much of a role maturation played in terms of cognitive development. More research is needed to assess the causal relationship between cognitive growth and the dance program. However, at the very least, I can assume that the “Dancing for Development” program does not harm cognitive development, and potentially encourages cognitive growth.

Motor Development

Due to the nature of the measurement instrument for motor development and issues with inter-rater reliability (one teaching artist consistently marked more movements on her rubrics than the other teaching artist, which would alter the total scores for each group of students), I had to transform the data from movement scores into percentages. To do so, I took the percentage of movements completed (number completed divided by total number of movements recorded for that day) for each observation. After converting the data, I created graphs (see Figures 8 & 9) for each group that tracked the motor development of specific kinds of movements. Both graphs showed general upward trends in every movement category, suggesting that there was improvement in motor skills throughout the program. The lines generally appeared
steeper for the peer models, so at first glance, it looked like there was possibly more growth for that group of students as opposed to the students with special needs.

To prepare for the t-tests, I chose to look specifically at the first observation (some of the students were absent on the first day or did not begin the program until several weeks in) as well as the last observation of each student. I chose to do that because it was the most consistent way to assess each individual student based on attendance in addition to taking the teaching artist that scored them into account. Once I had standardized the data based on those percentages, I ran an aggregate t-test to assess whether or not there was a significant difference between the percentage of movements completed in the first versus the last week of observation. For the whole class, the post-percentage of movement completion was statistically significantly greater than the pre-percentage ($t = 4.1820, p < .0009, \alpha = .05$). This test suggests that we can reject the null

Figure 8. Motor Development: Peer Models
Figure 9. Motor Development: Special Needs

that the difference between the pre- and post-percentage of movement completion was zero – it appears that motor development improved between the first and the last class. However, when the peer models’ and the special needs students’ data were tested independently, the peer models’ difference remained significant (post > pre, t = 14.5572, p < .0000), while the students with special needs’ difference was not significant (t = 1.3015, p < .2343, α = .05). Therefore, the quantitative data suggests that the program was potentially extremely effective for helping the peer models improve motor skills, but it did not make a difference for the students with special needs. In reviewing the data further, it appeared that there was an outlier in the special needs group – a student had to be taken out of class on his first day in the program, so the percentage of movements that the student completed was not reflective of overall participation or movement ability – so when I removed that student’s scores from the data, I found that the percentage of
movement completed in the last week was statistically significantly higher than the first week for the students with special needs (t = 4.7198, p < .0033, α = .05). Thus, removing the outlier shows that motor development significantly increased for both groups between the first and the last class of the program.

Similar to my analysis method for both socio-emotional and cognitive development, I also decided to run a difference in differences t-test to see if those results mirrored the results from the independent groups’ t-tests. The difference was a percentage score – the pre-percentage subtracted from the post-percentage. Consistent with previous results, the test showed that the peer models grew statistically significantly more than the students with special needs (t = 5.5095, p < .0001, α = .05). Figure 10 reflects the data with the outlying student removed from the data set.

When the average percentage of completion was broken down based on each observation, the data shows that the peer models increased consistently throughout the
program. The students with special needs, however, increased on average until the third observation, but the fourth observation’s average was less than that of the third (see Figure 11). Therefore, that suggests that there was something going on during the last few weeks of class that was not as beneficial for the students with special needs. More research is necessary to discover exactly what that was, or if that was an anomaly for this specific case study.

Referring again to the teacher surveys (see Appendix C), the special needs classroom teacher attributed 70% of her students’ growth in motor development to the dance program, and she was 100% confident in the accuracy of her estimate. The other classroom teacher thought, once again, that 100% of the growth in motor development was due to participation in the dance program.

Figure 11. Total Motor Development by Percentage

![Graph showing Total Motor Development by Percentage](image)

In sum, it appears that the “Dancing for Development” program correlates with increases in motor development skills, regardless of group. However, there are several limitations to these results. The measurement tool allots room for teachers to note that
each student “Tries,” “Completes,” or “Exceeds Expectations.” Since it was clear that the peer models showed more growth than the other students, perhaps the measurement tool did not allow enough space to note the growth of some of the students with special needs. For example, if a student tried and was not able to correctly perform a movement during the first week, but improved his/her ability somewhat throughout the program without still perfectly completing the movement by the last week, the tool would not be able to measure that kind of improvement. Therefore, while we can cautiously say that the program does positively impact motor development, it is clear that there are some measurement implications to consider for future research.
Chapter 5: Qualitative Analysis

After completing the quantitative analysis, I analyzed my qualitative data to see if it told a similar story. With 10 “Dancing for Development” classes worth of field notes, I went through and coded every observation into one of several categories, which I separated into socio-emotional, cognitive, and motor development themes. I counted how many observations I made in each category and denoted with a plus (students who showed improvement, proficiency, or demonstrated the behavior) or minus (students who did not demonstrate the behavior, struggled, or were challenged in some way). Charts were created to assess the number and kind of observations made within each category, and I cross-referenced my notes with the teaching artist and classroom teacher interviews. I assessed the qualitative data alignment with the quantitative analysis depicted.

Throughout the qualitative analysis, I identified several biases that were evident in notes from field observations. If most students were behaving as expected and following along with the teaching artists, I was much more likely to write down observations about the children who were not doing what the rest of the class was doing – I documented the students that drew my eye away from the rest of the group, which was usually because they were acting out in some way. I noted the children that pulled my attention partly because they stood out to me, but also because it was much easier and more efficient to write down the name and behaviors of one student that was not following along rather than write down the names and behaviors of all of the students that were doing what they
were supposed to. As a result, my field notes were strongly skewed toward observations of the students struggling in some way. I also knew which students were in each group – I could identify those with special needs and peer models. That created bias because I paid more acute attention to the students with special needs and was much more likely to document their behaviors, both positive and negative. With a cursory analysis, my notes suggested that the program did not correlate with socio-emotional or cognitive development, but after comparing my notes against the interviews with the classroom teacher and teaching artists, it was clear that there was evident bias in my note taking habits. Thus, it is important to consider the results holistically to get an accurate understanding of the program’s narrative.

Socio-Emotional Development

When analyzing my field notes, I coded for trends and came up with six major categories of socio-emotional behaviors (see Table 2). The first was smiles – I often noted that one or several students were smiling or laughing, and I also documented when students began to cry. A subcategory of “smiles” as an observation arose because I often emphasized the word “smile.” For example, if I underlined the word, or wrote “HUGE smile” or “BIG smile,” I also identified it within a “HUGE smile” subcategory. Eye gaze was the second major category; I occasionally noted when students were paying close attention, but more often I recorded when their gaze was not on the teachers or where it was supposed to be at that moment (bias was particularly evident for this category). Self-space was a third trend that emerged in my notes – I documented when the children were able to find self-space and when they were too close to one another or running into one another. A fourth category was cooperation, when students were working well together or
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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| **1. Smiles**                  | **Successful**: students smiled, laughed, showed joy  
- Subcategory: emphasis of the word  
  “Smile” in my notes – ex. underlined,  
  “HUGE” smile, “BIG smile”  
**Challenge/struggle**: students cried (no  
“challenge/struggle” observations for subcategory) |
| a. Subcategory:               | **“HUGE smiles”**                                                                                                                                   |
| **2. Eye gaze**               | **Successful**: students were looking at teaching artists, gaze was directed at current activity  
**Challenge/struggle**: students were staring into space, looking at the ground, eye gaze was not focused on  
teaching artist or activity |
| **3. Self-regulation and       | **Successful**: children were appropriately responding to their environment, or calmed themselves down after crying  
impulsive behaviors** | **Challenge/struggle**: students grabbed teachers, ran around, cried/screamed, threw themselves on floor, spoke out of turn, or were generally acting out; behaviors demonstrating inappropriate response to environment |
| **4. Cooperation**            | **Successful**: children were able to work together to accomplish tasks  
**Challenge/struggle**: students had difficulty working together to accomplish tasks |
| **5. Helping behaviors**      | **Successful**: students went out of their way to assist other students – ex. holding hands to guide another student, picking up props if another student dropped them  
**Challenge/struggle**: none for this category |
| **6. Self-space**             | **Successful**: students were able to find safe space to dance, away from other students, walls, or tables, or students moved away from other children if they were too close  
**Challenge/struggle**: students ran into one another or stayed too close to other students/teachers |
when they had trouble working as a team. I combined self-regulation and impulsive behaviors into a single category, which I used to describe the behaviors of students who were calm and following along correctly or those who had trouble holding still and tended to run around when they were not supposed to. Finally, I had a category of helping behaviors, when students went out of their way to help one another.

*Overarching Trends*

In recording field observations, I counted the number and kind of socio-emotional observations I documented (see Figure 12). I recorded 100 notes about socio-emotional indicators – 68 of which were about the children with special needs, and 32 of which were about the peer models. In general, the majority of my notes throughout the residency indicated struggles or challenges for the students with special needs. However, the nature of the observational statements tended to describe the class more generally in the beginning of the residency, while the observations at the end of the residency described specific children. That could indicate that the challenging behaviors were on a classroom-wide scale at the beginning, but that most students gained mastery of the behaviors at the end, which led to my pointing out specific students that were still struggling. I was also more likely to write down when students were *not* doing something correctly, or when single students caught my eye and stood out from the rest of the group. In that sense, it was easier to document the children that were acting out or demonstrating challenging or struggling behaviors. For example, if most of the students were cooperating with instruction or appropriately self-regulating their behavior – which is defined as a process that allows children to respond appropriately to their environment (Florez, 2011) – but one student was constantly in motion, separating from the group, and
unable to self-regulate, then I was more inclined to document that one student rather than the rest of the class. That student drew my attention away from the rest of the group, and it was faster for me to document the one child that was struggling with self-regulation rather than the fourteen other students that were able to self-regulate. Thus, it is important to take into consideration that the notes for socio-emotional development are slightly skewed in favor of the challenging or struggling observations of the students.

Figure 12. Total Socio-Emotional Observations

In addition to counting the total number of observations made throughout the residency, I also documented the kinds of observations made on a weekly basis (see Figure 13). It is important to note that during the first week, there were only 5 students present, four of which were peer models. They also did not have name tags, so it was difficult for me to note who was who in the first week. Though the second week was more representative of the rest of the residency in terms of population, I was still trying to get an idea of who was who, and thus I only documented the most extreme or consistent behaviors that I noticed. Though successful socio-emotional behaviors certainly increased
and decreased throughout the residency, in general, the students with special needs had a larger number of successful behaviors and a fewer number of challenging or struggling behaviors at the end versus the beginning of the residency. Therefore, during the program, the students with special needs exhibited a general trend of socio-emotional growth, as exhibited in “Oliver’s” story (see Figure 19). I documented that the peer models demonstrated fewer struggling behaviors at the end versus the beginning, but they also had fewer successful behaviors at the end as opposed to the beginning. The latter trend is a bit more difficult to interpret, but because most of my observations focused on the students with special needs, it may have resulted in an inaccurate representation of the peer models in my notes. Additionally, since I tended to document fewer successful behaviors for the group as a whole, my limited observations for the peer models could translate to the general success of the group; if they were all behaving as expected and doing activities correctly, I would not have it specifically documented.

Figure 13. Number of Socio-Emotional Observations by Week
Though my notes showed a tendency toward observations of the students with special needs struggling, the interviews did not show a similar trend. The teaching artists and classroom teachers, when asked about socio-emotional development in general, were much more likely to emphasize the improvement they noticed in the students. Occasionally they specified a student’s behavior in particular, but they also spoke more generally about their overall impressions of the class. My notes, on the other hand, singled out individual students much of the time. That could explain why the teachers in my interviews made fewer comments about any children, students with special needs or peer models, struggling with socio-emotional behaviors as compared to my notes – I was specifically focused on the students who weren’t doing something, especially if the rest of the class was on task. Therefore, it is important to take all qualitative sources into account to get an accurate picture of the students’ socio-emotional development.

*Smiles*

After I analyzed my general observations, I broke them down to see what the trends for specific categories of socio-emotional development showed. One of the biggest trends I noticed was my use of the words “smiles” or “laughs” throughout my notes (see Figure 14). Several times, I also emphasized the word “smile” with an underline, or a “HUGE” or “BIG” before the “smile” (denoted by “HUGE smile” in Figure 14) – I did not intend to do that at the time, but rather noticed the trend after I began looking through my notes. Though I had several observations for both the students with special needs as well as the peer models, I had significantly more observations for the students with special needs.
In general, I tended to write down either when the whole class was smiling, or when one student’s expression dramatically changed into a smile. Big smiles were especially evident in students who tended to have slack facial expressions – students did not show evidence of emotion in their faces, or had flat affect. “Ryan” and “Richard” were two students with special needs that I documented frequently. Both of them often lacked obvious emotional expression in their faces – their faces appeared blank much of the time – so when they smiled, it was an obvious change from their normal facial expressions. Though in some cases my recording of smiles equated to the students’ success in movement tasks (they seemed proud of what they were able to do), there were also times when a student did not quite get a movement exactly right, but still smiled a lot while trying. For example, in Week 7, the students were instructed to jump like grasshoppers. I recorded that “Richard” (a student who was otherwise not very mobile) had a huge smile on his face for the activity, even though he was stomping rather than jumping for most of it. Therefore, smiles in this case were not necessarily always
indicative of success or confidence. The biggest significance I can place on this trend is that the students were truly enjoying what they were doing – they were having fun.

Though having fun may not seem like a tangible, important effect with specific developmental results, Stinson (2005) makes the argument that the fact that dance is fun should be considered a positive learning outcome in itself. Experiencing the joy of dance can help students to become more confident and to self-actualize. Self-actualization is one of the highest levels of socio-emotional development, in which students realize their potential and achieve their goals. Thus, it is necessary to consider joy and excitement a fundamental part of the program.

A similar trend emerged in the interviews with the teaching artists as well. The one instance they mentioned the word “smile” was with regard to a student with special needs who was extremely excited and joyful about dancing and moving. “Leslie” and “Susan” were the two teaching artists assigned to deliver the program to “Amy’s” classroom. “Leslie” had been teaching for about 25 years, with some experience teaching inclusion or special needs residencies, while “Susan” had been working with children for about ten years. “Amy’s” classroom’s residency was the fourth that “Leslie” and “Susan” taught together, but the first inclusion residency they taught together. In the interview after Week 5 of the program, I asked them about what stood out to them so far in the residency. They both agreed that seeing “Richard’s” smile was one of the most compelling moments they had witnessed. Figure 15 details “Richard’s” narrative.
Richard’s unbridled joy in that moment was so incredible – I remember thinking to myself, “His joy and excitement is why dance is so important. That is why I’m doing this research.” In the interview, the teaching artists expressed similar excitement about “Richard’s” smile that day – they felt that they made a connection with him in that moment, and they were so excited to see him get so excited about moving. “Susan” even called it “the coolest part of everything.” Considering that nearly every week included at least one observation of a child smiling, I think the most important takeaway with regard to socio-emotional development was that the children really loved the residency. They had fun, and their faces constantly showed it. The classroom teacher, “Amy,” also confirmed that in her interview – when asked what she thought the most significant part of the “Dancing for Development” residency was, she answered, “Holy moly. I like
seeing the kids get excited about it.” “Amy” also described “Dancing for Development” as a high-interest program that used dance and music to better engage the children. Previous research has shown that participation in the arts can lead to higher engagement in school (Catterall & Hampden-Thompson, 2012), so since the children already appeared to be very excited about dance, that could extend to a long term benefit of the program. However, more longitudinal research will be necessary to see if that assumption holds true.

Eye Gaze and Self-Regulation

Two more themes that that frequently emerged in my notes were eye gaze and self-regulation or impulsive behaviors (see Figure 16). Once again, these were two specific kinds of behavior I was more likely to note that children did not do, producing more observations of children struggling or demonstrating challenges in my field notes. For example, if most students were watching the teaching artists, I documented the student that was gazing off into space or looking at the floor rather than write down all of the students that were doing what they were supposed to. The same was true for self-regulation or impulsive behaviors. Florez (2011) defines self-regulation as “several complicated processes that allow children to appropriately respond to their environment” (p. 46). Therefore, any notes stating that students were grabbing teachers, running around, crying and screaming, throwing themselves on the floor, speaking out of turn, or generally acting out were considered to be struggles with self-regulatory behaviors. Though it may just have appeared that students were simply being rambunctious, I did not classify “rambunctiousness” as mutually exclusive with an inability to self-regulate. Since the students were expected to come in and follow along with the teaching artists, if
they impulsively ran around instead of following directions, I considered that to be an inappropriate response to the specific environment, and thus a struggle to self-regulate. However, if students were able to calm themselves down or did not react when other students ran into them, for example, I recorded that as a successful self-regulatory behavior. Due to the nature of the classification of behaviors, it was much easier to identify challenges, which results in the distribution of observations in Figure 16.

Figure 16. Socio-Emotional Observations: Eye Gaze and Self-Regulation/Impulsive Behaviors

For the most part, it appears that the students with special needs struggled with self-regulation and appropriate eye gaze more so than the peer models. However, both of those socio-emotional indicators are classified as deficits associated with certain disabilities, such as Autism Spectrum Disorder (ASD), a group of developmental disorders that can affect social behaviors. Therefore, the results shown in Figure 16 are not surprising. I decided to look specifically at struggles/challenges for the students with special needs to see if there was a change throughout the residency (see Figure 17). When
I broke it down by comparing the first half of the residency (Weeks 1-5) to the last half of the residency (Weeks 6-10), it appears that eye gaze improved, with “struggles” being observed eight times in the first half as opposed to only four times in the second half.

Self-regulation did not yield the same results; I noted “struggles” eight times in the first half versus 13 times in the second half. However, that could partially be explained by the fact that there were two new students that arrived during weeks five and six, both of whom greatly struggled with self-regulation – because they were often crying or running around, most of my “struggles with self-regulation” observations were about those two children in particular. It appeared that they had significantly more trouble than the other students with self-regulation, so the majority of my notes about self-regulation centered on them.

Figure 17. Students with Special Needs: Struggles with Eye Gaze and Self-Regulation

To get a better idea of what was happening in the final weeks of the program, I looked specifically at Weeks 5-10 (see Figure 18). In total, I wrote down “struggles with
self-regulation” eight times in weeks 5-7, and also in weeks 8-10. Therefore, the general trend of self-regulation in the last weeks was steady, suggesting that at the very least, there was not a decrease in ability to self-regulate. The weekly observations also show a drop in inability to self-regulate from Week 9 to Week 10, which potentially shows a general improvement in self-regulatory behaviors for the students with special needs. However, there was a similar drop in observations from Week 6 to Week 7 before an increase in Weeks 8 and 9, so it is difficult to determine if the downward trend would continue past Week 10.

Figure 18. Students with Special Needs: Struggles with Self-Regulation in Weeks 5-10

It is also important to note that one of the aforementioned students, “Oliver,” that came in during Week 5, made considerable progress in self-regulation and impulsivity in the five weeks he participated in the program (he was absent for Week 10). Figure 19 details the narrative of his significant improvement in ability to self-regulate. Specific instances such as “Oliver’s” story suggest that while my observations of the class as a
“Oliver’s” Story

During “Oliver’s” first week, he came in and began crying and yelling, clearly very upset. It was a new environment for him, he did not know the teaching artists or the accompanists, and it could be very loud with the piano echoing around the gymnasium, so it was not unreasonable for him to be uncomfortable at first. However, he was yelling so loudly that it became nearly impossible for anyone to hear the teaching artists give directions. With other children, it is not uncommon for them to cry a little at the beginning, but calm themselves down and participate when they realize that they are safe and it is a (hopefully) fun experience.

Unfortunately, after a few minutes, it was clear that “Oliver” wasn’t one of those kids. To the teaching artists’ relief, his teacher decided to take him out of the room for a few minutes to try to calm him down. They came back into class and it was the same thing again – he was crying so loudly that it was difficult to hear anything else. This time, “Amy” had treats for him, so she managed to entice him to roll like a hedgehog, but he still cried the whole time. The next class began much the same way – “Oliver” began screaming as soon as he walked into the room and saw the teaching artists and the piano, and “Amy” had to take him out of the room. That day, though, she sat with him by the door so that he could watch the class happen. While “Oliver” was sitting with “Amy,” he was able to calm himself down, and he even moved his arm like a lasso with the rest of the class – the teaching artists (and I) were excited by that small but significant demonstration of progress. By the end of the class, he joined in to become a snake and then a butterfly, and he even went over and said hello to the accompanist. By Week 8, he came in with a smile and was participating for the entire class without crying. He did demonstrate some impulsive behaviors, like crawling out of the circle and running away during seated stretch, but the amount of improvement that we saw from him in general was astonishing. The classroom teacher agreed; in her interview, she stated, “large spaces, new things were terrifying for him, for him to literally take a class or two to, to jump on board was amazing.” She also said that the behavior “generalized to us, that now when we go to some other classes, he’s not fearful.” So despite the fact that the number of observations shows a greater number of “negative” self-regulation behaviors for the students with special needs, that does not adequately express the amount of growth that many of the students experienced.
whole may not have definitively shown a large improvement in ability to self-regulate, there was certainly improvement for specific students.

*Cooperation and Helping Behaviors*

Though I did not make note of cooperation and helping behaviors as frequently as the aforementioned socio-emotional traits, I did make several observations (see Figure 20). For cooperation, my notes primarily addressed how the students worked together. For example, sometimes the teaching artists would prompt the students to quickly make a circle by holding hands, and they would practice moving in closer to make the circle smaller, and then moving outward to make the circle big again. Observations classified as “successful” were usually about the success of the circle activity, while “challenge/struggle” observations were when students had trouble or were pulling on other students’ hands. I classified a helping behavior as one student going out of his/her

*Figure 20. Socio-Emotional Observations: Cooperation and Helping Behaviors*
way to assist or guide a fellow student, regardless of whether the student had special needs or was a peer model. I did not note any “struggles/challenges” for helping behaviors – I never noticed a student blatantly trying to hinder another student, so there were only successful observations for that category.

Once again, I made a greater number of “successful” observations about the peer models for cooperation, and a greater number of “struggles” observations about the students with special needs. For helping behaviors, that trend could be due to the fact that the students with special needs were more likely to struggle with certain tasks, and so the peer models had the opportunity to help them. In two instances, however, there were two students with special needs helping each other to stay in the circle by holding hands, so the helping behaviors were not limited to just the peer models. In terms of cooperation, I would argue that the struggle with self-regulation that was apparent for several of the students with special needs likely also hindered their abilities to work together with other students. If a student was constantly running away from the circle, he/she was also not cooperating with the other students; therefore, it makes sense that the trends of challenges with self-regulation and challenges with cooperation emerged similarly in my own observations.

“Amy” also noted the impact that “Dancing for Development” had on both cooperation and helping behaviors. She said it was a benefit for all students to be able to work together, or to all try to become an animal (i.e. walk like a bear) at the same time. She stated that some behaviors “like taking someone’s hand and helping them over to join the group” manifested even more in the classroom after having the dance program. For example, sometimes she has different groups of students doing different activities in
the classroom. She noted that sometimes, students that are not paying attention will not immediately follow her directions about which group should do which activity. She stated: if “somebody’s sitting at the table, you know, and has not, you know, attended to get that instruction, one of the other kiddos will walk over, and we’re not saying a word. You know, they’re just taking their hand.” In other words, students are helping one another to follow directions without the teachers explicitly instructing them to do so. Thus, the helping behaviors are often spontaneous from the kids themselves, which shows a level of socio-emotional maturity that I did not see at the beginning of the residency. In my final interview with “Leslie,” the teaching artist, she also mentioned that she noticed the children would “work together and get things accomplished.” She gave the example that when using scarves for butterfly wings, occasionally children would drop a scarf. She said she noticed that initially, “maybe if they saw a scarf on the floor they were picking it up themselves. But then I think the more times we did it, they were finding the person that had lost it, or something like that.” Therefore, once again, despite the discrepancy in “successful” and “challenge/struggle” observations for each group, it was clear that there was significant growth in the class after the residency.

**Self-Space**

I had the fewest number of observations in the category of self-space. I noted three “successful” behaviors for the peer models (they did a good job finding a spot where they would not run into other children), two “challenge/struggle” behaviors for the students with special needs, and three “challenge/struggle” behaviors for the peer models (they ran into each other or stayed too close to other students or teachers). Once again, I was more likely to notice and record when students had trouble finding self-space. The
students with special needs often had hands-on help from the teachers, so they were more likely to frequently be close to someone else. Though there were few observations, a greater number of “successful” observations took place at the end of the residency (Weeks 8-10), so it appears that the students were able to learn how to find self-space and resist the urge to dance right next to, or in some cases nearly on top of other students.

“Leslie” and “Susan” noted the general improvement as well, even as early as Week 5. “Leslie” described her excitement about the fact that the students were able to follow one another in a circular path. She stated, “I think that is like, gold star.” She also noted that even as soon as Week 5, they were usually not all “converging on one place.” Finally, she also made a comment that in some classes, there might be two children who are best friends and always hand in hand next to one another, but that wasn’t the case in “Amy’s” class. (Though “Leslie” used the “best friends” example to give evidence about the self-space issue, it can further explain the helping behaviors as well – if students were not always wanting to hold hands with one another, then the moments that they chose to do so were probably genuine helping behaviors.) In sum, it appears that the students’ ability to find self-space and choose to dance in an appropriate spot in the gym improved throughout the residency.

**Conclusion**

When simply looking at the number of socio-emotional observations I denoted, it appears that there was not a lot of growth in socio-emotional development throughout the residency; however, a closer analysis of the classroom narrative shows otherwise. Taking all data sources into consideration, it appears that the qualitative data does mirror the quantitative data. Both groups of students showed improvement in socio-emotional
development, as the quantitative measures demonstrated, and it certainly appears that there was more growth in the students with special needs as opposed to the peer models. Part of that could be explained by the fact that the peer models didn’t have as far to go in terms of improvement, so there is some evidence that the program helped the students with special needs to somewhat bridge the gap in socio-emotional development by the end of the residency. Therefore, once again, we can cautiously interpret the program as being beneficial to socio-emotional development for all students, and especially for students with special needs.

Cognitive Development

When coding cognitive observations, I identified a total of eight categories for cognitive development (see Table 3). The first of these included any behaviors that demonstrated that the students were following along and participating in the activity, or showed that the students were not able to follow along with the teachers or the rest of the class. Similarly, a second category of observations dealt with the ability to follow one-step directions, such as “Go sit on the red line.” When the children were able to follow directions, it was coded as a “successful” behavior, while if they were unable to do so, I marked it as a “challenge/struggle.” Attention/focus was another major category of interest. I documented when children were paying attention closely, or, more often, when they were unable to focus on the task at hand. The next category that emerged had to do with the ability or inability to give appropriate answers to questions. For example, the teaching artists often asked the children questions about characters in *The Mitten* – “How many legs does a bear have? Is a mole bigger or smaller than a bear?” The appropriate answers category assessed whether or not children appropriately and correctly answered
Table 3. Cognitive Observational Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Following along</td>
<td><strong>Successful</strong>: students were able to follow along with activity and were consistently participating</td>
</tr>
<tr>
<td></td>
<td><strong>Challenge/struggle</strong>: students were unable to follow along, did not consistently participate with movement activities</td>
</tr>
<tr>
<td>2. One-step Directions</td>
<td><strong>Successful</strong>: students successfully followed instructions such as “Go sit on the red line”</td>
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<tr>
<td></td>
<td><strong>Challenge/struggle</strong>: students did not correctly follow instructions as given by teaching artists or classroom teacher</td>
</tr>
<tr>
<td>3. Attention/Focus</td>
<td><strong>Successful</strong>: students were paying attention, as evidenced by eye gaze and nonverbal responses (nodding, pointing); students followed through with tasks</td>
</tr>
<tr>
<td></td>
<td><strong>Challenge/struggle</strong>: students showed inability to pay attention, or were not able to follow through with tasks</td>
</tr>
<tr>
<td>4. Appropriate Answers</td>
<td><strong>Successful</strong>: students correctly or appropriately answered questions – i.e. Q: How many legs to bears have? A: Four</td>
</tr>
<tr>
<td></td>
<td><strong>Challenge/struggle</strong>: students answered questions with irrelevant or incorrect statements – i.e. Q: What happens to ice when it melts? A: It’s too cold</td>
</tr>
<tr>
<td>5. Remembering*</td>
<td><strong>Successful</strong>: students offered correct answers to questions about what happened in previous classes – i.e. What kinds of bugs did we talk about last time?</td>
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<tr>
<td>6. Self-Correcting*</td>
<td><strong>Successful</strong>: students who were performing a movement incorrectly realized what they were doing wrong and corrected themselves without prompting from a teacher</td>
</tr>
<tr>
<td>7. Turn-taking</td>
<td><strong>Successful</strong>: students waited patiently to take their turns to perform an activity, such as across-the-floor solos</td>
</tr>
<tr>
<td>8. Innovation and Unique Choices*</td>
<td><strong>Successful</strong>: students made inferences about stories or chose to perform movements they had not seen other students perform</td>
</tr>
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</table>

*No “Challenge/struggle” observations were noted for this category
those kinds of questions throughout the residency. I also documented which students were able to remember concepts from previous classes in its own category – whenever the teaching artists asked, “Who can tell me an animal that we talked about last time?” I recorded which students offered answers. Turn-taking was another category of interest – more often than not, I recorded which students struggled with waiting their turn to do their solo across the floor. There were a couple of occasions when I noted that the children were doing something incorrectly and were able to correct themselves without teacher intervention, so I coded that as its own category – self-correction – despite the fact that I did not have a high number of observations pertaining to it. Finally, I grouped observations that demonstrated any choices or innovative thinking on the children’s part – for example, if a student was going across the floor for his solo and chose to do something different than the person before him, or if a child offered an insightful answer to a question or made a unique shape in response to a prompt, he demonstrated a “successful” choice or innovative behavior.

Overarching Trends

As with the socio-emotional observations, I began the cognitive analysis by observing the amount and type of observations I made throughout the ten weeks (see Figure 21). I made a total of 191 notes about cognitive behaviors, with 103 about the students with special needs and 88 about the peer models. The trends were slightly different than my socio-emotional observations – I recorded the greatest number of observations about “successful” behaviors for the peer models.

Contrary to some of the socio-emotional categories, it was easier for me to record successes rather than challenges – I was more likely to state that a child correctly
answered a question or remembered something from the previous class rather than note all of the students who did not do those things. However, that leads to a limitation regarding cognitive observations. Much of the time, cognition is measured verbally – was the student able to answer the question or remember the animal by saying so? For those students who are nonverbal, it was much more difficult to accurately determine the level of cognitive ability when I was primed to focus on verbal expression. That trend illustrates an interesting difference in socio-emotional and cognitive development. The cognitive developmental indicators that I focused on often manifest in actions, such as answering questions, remembering something, or making choices. Conversely, socio-emotional developmental indicators often relied more on the absence of behavior, such as not running around when supposed to stay still, not talking out of turn, not letting eye gaze wander, etc. While I was observing, I was much more likely to record actions rather than inactions, so that could be a possible explanation for the overarching trends in my field notes. However, the second-greatest category in my cognitive observations was the

![Total Cognitive Observations](image-url)
“challenge/struggle” behaviors of the students with special needs. Most of those came out of the inability to follow along or doing something blatant that demonstrated a lack of attention or focus, which usually meant that a child drew my eye because he/she was not doing what the rest of the class was doing. Therefore, the cognitive observations that I recorded were subject to some of the same biases as the socio-emotional observations, and it is important to take that into consideration when assessing the cognitive development of the class in general.

To get a general idea of cognitive observations throughout the ten weeks, I also charted my observations for each week (see Figure 22). Once again, during the first week of the residency, there were only five children in the class, and four were peer models. That could explain why I recorded significantly more “successful” observations of the peer models than anything else for that day. However, the rest of the counts imply that based on my own observations, there was not a whole lot of cognitive improvement, especially in the last three weeks of the program. Once again, it is important to take into account that the two new students that arrived in Weeks 5 and 6 tended to struggle a bit more than their peers in general, and one in particular had a very difficult time paying attention and focusing during dance class. That could be one reason that the number of “challenge/struggle” observations increased for the students with special needs after the halfway point. I also looked back at my notes to see if there were other issues going on that might explain the pattern. One student with special needs that I frequently noted in my observations came in with his arm in a cast in Week 8, so he had to modify some of the movement activities. That was part of the reason he could not follow along as well as usual, thus resulting in more “challenge/struggle” observations. There was also one
student in Week 8 that was not feeling well and sitting out, which led me to mark him as “not following along” as well. Finally, I think the energy level on the last day of class was more intense than usual. The kids were all very excited to do their final solos, which led to all of them wanting to go at the same time and not being able to take turns, so there were a lot of “challenge/struggle” marks then as well.

Figure 22. Number of Cognitive Observations by Week

Before concluding that the students demonstrated little cognitive growth, it is important to mention a comment that “Amy” made in my interview with her. When I asked her about cognitive development specifically, she explained that cognitive development was not really a “big area that we focus on” since the children do not have the foundational knowledge that they would gain in a year or two. She stated: “it’s not actually an area of deficit that we even entertain at this point.” She then began specifically discussing one-step directions and turn-taking, but she considered those to fall under socio-emotional development that leads to higher executive functioning, whereas I classified them as cognitive development (Mid-State Early Childhood
Direction Center, 2012). She also indicated on her teacher survey that she attributed 30% of the growth in executive functioning and cognitive skills to the program, so she recognized that there was cognitive development happening even if they don’t specifically measure it. I was surprised that they do not consider cognitive deficits at that age, because the ballet company’s student surveys address several measures that can be classified as cognitive indicators. However, perhaps since the teachers are more focused on socio-emotional growth, the cognitive indicators are less valued at such a young age because there is the assumption that there will be more cognitive growth in future years; therefore, we should not be as concerned that we did not see substantial cognitive growth in my written observations. Once again, it is also important to take the whole narrative of the class into consideration before determining that there was no cognitive growth at all.

**Engagement: Following Along, One-Step Directions, Attention/Focus**

To get an idea of the overall level of engagement of the students, I looked at my observations for following along, one-step directions, and attention/focus (see Figure 23). Interestingly, these three measures do not match the overall distribution of the cognitive observations in aggregate. I noted less about the peer models than the students with special needs, and primarily the observations were skewed toward “challenge/struggle” behaviors. That trend suggests that the students with special needs generally had a harder time staying engaged, paying attention, and following along with the rest of the group. In examining the timeline and the kinds of observations I made, there were no “successful” comments about the peer models’ abilities to follow along during the last five weeks of the residency, which means that once again, I was detailing the minority of students that were not doing what they were supposed to rather than most of the students that were
able to follow along. That could explain the difference between the “successful” and “challenge/struggle” observations. It is also interesting to note that in the final weeks, I made several observations about lack of attention and lack of following along. Weeks 9-10 happened after spring break, and Week 9 was a particularly difficult week with a total of nine “challenge/struggle” observations for the students with special needs for following along and one-step directions. The class took place on a Monday, so it is understandable that they had not yet entirely adjusted to being back in school after ten days off from school. That could account for some of the lack of focus during the final two weeks of the program. There is also the fact that my observations could be somewhat biased in terms of my expectations – by Week 10, I had pretty high expectations for the students, and I might have been more critical of their behaviors than I was at the

Figure 23. Cognitive Observations: Following Along, One-Step Directions, and Attention/Focus
beginning. I recorded most of the “challenge/struggle” behaviors rather than the “successful” behaviors, so the fact that I consistently documented the anomalies and not the general behaviors of the class as a whole likely skewed my notes as well.

Some of my own observations were also initially reflected by the teaching artists. In terms of attention and following one-step directions, “Susan” stated that “the typical children are a bit more quick to connect the idea or follow the direction…and, like, focus is a lot more than the, um, children that were not the typical learners.” In other words, at the five-week point, she also noticed some of the initial discrepancies between the two groups of children that emerged in my notes. However, in my interview with “Amy” after the program ended, I learned that perhaps my highly critical notes were not indicative of the whole picture. “Amy” specifically mentioned that she saw an improvement in following one-step directions in the classroom, and she appreciated that those were some of the skills the teaching artists worked on with them. She also talked a lot about attentiveness – she mentioned that since dance was a high-interest activity, they really enjoyed participating (which also mirrors my socio-emotional observations). She even stated that she was impressed that the teaching artists held “half an hour of attention for them, straight. So that was amazing.” Since “Amy” has been teaching special education in preschool for close to 20 years, I asked her to compare the class that received “Dancing for Development” with previous classes of hers. The first thing she mentioned was that the “generalization of attentiveness” with the class that received the dance program was stronger than previous classes that hadn’t had the program – they were better at paying attention and focusing than her preschool classes that did not get a dance program. Therefore, even though my specific notes did not always show it, it does appear
that there was some positive influence on some cognitive indicators such as attentiveness and one-step directions.

*Knowledge: Appropriate Answers and Remembering*

In an attempt to get a clearer idea of the level of cognitive “knowledge” of the students, I looked at the categories for appropriate answers and remembering (see Figure 24). Since those were the two content-based categories, I thought it would be interesting to look at them in conjunction. Note that I did not have any “challenge/struggle” observations for remembering – I only took notes on the students who vocalized or demonstrated that they remembered rather than assuming which students did or did not remember previous content. I found it interesting that very few students gave inappropriate answers to questions. That indicates to me that most students were listening to and processing the questions posed by the teaching artists to come up with a “correct” answer most of the time. It is not surprising that the students with special needs demonstrated more appropriate answers than remembering concepts. That goes back to measurement – some students that remembered concepts shouted out answers, so if a nonverbal student was demonstrating that he/she remembered something without speaking, my eye was drawn instead to the student that vocalized the answer. As Figure 24 shows, most often, the peer models vocalized that they remembered concepts from previous dance classes. Peer models were also more likely to vocalize an answer to a question. However, I did make one note about how a child performed a swooping movement in response to the question: “How does an owl move?” Thus, there were times when I was aware of nonverbal answers in my note-taking, but more often than not, I focused on the kids that verbally said something. The trend of paying attention to the
verbal students leads to an important implication for future observations – I need to be aware of that bias and do my best to control for it.

Figure 24. Cognitive Observations: Appropriate Answers and Remembering

The teaching artists discussed the concept of remembering as well. They were comparing “Amy’s” class to other “typical” residencies that they had previously taught, and they noted that by Week 5, the kids were less likely to come in and remember the names of the teaching artists and accompanist, whereas other students would come in saying hello using the teaching artists’ names. “Leslie” and “Susan” considered that to be a significant difference between the integrated class and other “typical” classes. However, later in the interview, they did comment about the fact that they were generally impressed by the ability of the students to remember animals that they had talked about previously. “Susan” was particularly impressed by the connections they had to make when remembering; she stated (from the perspective of the students): “Not only do I have to remember what they were, I also have to remember how they moved and where they went.” In the post-interview, “Leslie” also commented that “all of us were amazed at how...
much they all remembered.” She also noted the level of teamwork that arose when the students tried to remember previous concepts – she stated that one child might remember an animal, and that would prompt another to begin moving like the animal. She observed that “they filled in the gaps for each other.” “Amy” also mirrored that idea in her interview. She stated that “not contingent on either group having the answer, if somebody had the answer, it reinforced it for everybody.” Therefore, perhaps the number of times that the peer models remembered something is not as important as the fact that they stated the answer and shared it with the rest of the class, which was valuable repetition for all students regardless of their current level of development.

**Awareness: Self-Correcting and Turn-Taking**

Self-correcting and turn-taking were two more themes that arose in my notes (see Figure 25). Those behaviors were not quite as frequently mentioned, but I thought that looking at them together might give me a sense of the level of awareness the children had of the environment around them. If a student self-corrected without the explicit instruction of a teacher, it showed that he/she was paying attention enough to realize both that he/she was not doing something correctly, and was also able to figure out how to fix it, which to me demonstrates a very high level of cognitive engagement. Being able to wait one’s turn is also indicative of awareness; they realize the pattern of what is going on and can follow through with it. Though a failure to wait one’s turn might be an indicator of impulsive behaviors, it also might demonstrate a lack of awareness of what’s going on around the student; they do not realize that they should wait and instead immediately begin the activity. According to my field notes, the issues with turn-taking primarily arose when it was time for the students to perform their solos across the floor.
On the first day, the teaching artists taught the students what a “solo” was – one dancer dancing at a time. Unless they ran out of time, the last activity of each class was usually to have the students go across the floor one at a time for their solos, which resulted in them having to wait their turns to perform.

Figure 25. Cognitive Observations: Self-Correcting and Turn-Taking

Based on my observations, it appears that the students with special needs did not (to my knowledge) engage in self-correction. Part of that could be explained by the fact that some of them had teachers to help them almost constantly. Furthermore, the students with special needs that did not have a teacher with them most of the time tended to pick things up a bit more slowly than some of the other students. Perhaps the teaching artists were more likely to jump in before giving a student enough time to process and self-correct. There were also only two blatant occasions that I saw a peer model self-correct, so another possibility is that I simply missed it – I was watching other students and did not see a student correct him/herself.
In terms of turn-taking, it appears that the students with special needs struggled more than the peer models. Once again, we can relate that back to the impulsivity and self-regulation trend noted in my socio-emotional observations; perhaps students struggled to wait their turns because they struggled to regulate their behaviors and they just wanted to go for it. Additionally, turn-taking behaviors are similar to many of the other behaviors I recorded in that I was much more likely to document the students that were not successful rather than the majority that were able to wait to take their turns. Therefore, observations are skewed toward the “challenge/struggle” category.

Turn-taking was a concept that came up more than once in my post interviews with both “Amy” and “Leslie.” “Amy” talked about it not only in terms of waiting one’s turn to go across the floor for a solo, but also in terms of communication. The teaching artists would ask a question, the students would give an answer, and they would go back-and-forth in the conversation more than just one time. That was not the way I focused on it in my own notes, but it is something to consider for future research. “Leslie” talked about turn-taking more in the sense that I documented it in my notes – she noted that she was impressed that the children were able to wait their turns to go across the floor. She also noted that toward the end of the residency, the children were “even waiting then for us [the teaching artists] to give them the go ahead” rather than just going as soon as the previous student finished. That directly contrasts what my notes say, but I think what I failed to document was that after the students ran across the floor all at once, the teaching artists brought them back to try again, and most of the time, that was successful. I think that is what “Leslie” was addressing in her interview, so in that sense, there was definitely improvement in turn-taking within each class itself.
Making Choices/Innovation

The final category of cognitive observations that emerged in my notes had to do with making unique choices or showing innovation of some kind (see Figure 26). I combined those two behaviors into one category because to me, they signaled a high level of cognitive engagement and creativity. Oftentimes, students would go across the floor for their solos and be allowed to choose what kind of movement to do, or what kind of animal to be. The teaching artists would demonstrate something to show them the general pathway of movement, and then the students were prompted to choose what to do. In many classes, the students just performed the same movement as the teaching artist – it was salient because they had just seen it. However, if a student chose something different from the teaching artist or previous students, I marked that as a unique choice.

Figure 26. Making Choices

<table>
<thead>
<tr>
<th>Special Needs</th>
<th>Peer Models</th>
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<tbody>
<tr>
<td>1</td>
<td>7</td>
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Additionally, if a student offered an answer to a question that was particularly innovative, such as inferring what one of the animals in *The Mitten* was doing prior to finding the
mitten or demonstrating a unique angular shape when asked, I documented that as an innovative behavior.

Based on my observations, it appeared that the peer models were more likely to make unique choices or demonstrate outstanding innovation. “Leslie” also noticed innovation in the children, although she generalized to the entire class; she “really felt like they started to generate their own ideas” by the end of the residency. Though it appears that the peer models excelled more than the students with special needs, it is important to note that all students participated in going across the floor, which required some kind of choice in and of itself. It is also necessary to consider that in some cases, “innovation” was demonstrated through verbal means – answering a question and giving an inference, for example – so the nonverbal students may not have been accurately represented in that category as well. Finally, I realize after conducting some of the interviews that making unique choices and innovation are not entirely indicative of cognitive engagement. For example, “Leslie” pointed out that even the fact that the children were watching each other more in their solos was interesting. She stated:

Like on solos, where, at, you know, at one point, everybody did what I did, or whatever, or whatever ‘Susan’ demonstrated, you know. But then you would have that one person that decided to do something else, and then the next three or four or five would do that. So you saw them watching each other a little bit more.

Though I did not record that in my own notes, she brought up an excellent point – watching other students rather than the teaching artists and basing a choice on that also shows some level of innovation. In classrooms, we often assume that the teacher has the correct answer, so following the lead of another student may essentially be equated with risk-taking – that student may not have the “right” answer, especially if it is different
from the teacher. (Note that the teaching artists never considered students to have
“wrong” answers when it came to movement, but it is reasonable to think that the
students might have felt that way to some extent.) Watching each other more closely and
following along with peers in the class also demonstrates a level of engagement that I did
not think to record in my own notes, so that is another thing to keep in mind for future
research.

Willingness to Try New Things

A final trend that I did not document explicitly in my notes but that arose in each
of my interviews was the children’s willingness to try new things. In my interview with
the teaching artists after Week 5 of the program, “Leslie” mentioned that she thought the
class in general seemed hesitant to try new things. Her comment made me think of the
students’ behavior in terms of risk aversion – they may be nervous in a new setting and
less willing to take risks because they do not yet know or trust the teaching artists.
However, by the end of the residency, both “Amy” and “Leslie” shared that they noticed
a change in that kind risk-aversion. When I asked what she thought the biggest takeaway
from the class was, “Leslie” immediately answered, “Just their willingness to try
anything…this class, everybody jumped in with two feet.” Therefore, she must have
noticed more risk-taking behaviors throughout the last five weeks of the program to get
her to change her mind about the students’ initial hesitance. “Amy” also shared a story
about a student who often struggles with motor tasks and also tends to take a long time to
follow through when given a direction. However, she stated that in a music class when
the students were asked to put on a play:
He volunteered to act out the part of a chicken in one of the plays, and just tore it up... the fact that he was able to go from not a whole lot of follow through and definitely a lot of lag time to jumping in and doing that...was significant of some other, you know, transitions.

So therefore, there was something positive happening with the students’ willingness to try new things and take risks that I did not document in my own notes. In the future, I can be more cognizant of those behaviors and address them in my own observations.

**Conclusion**

In sum, the data for cognitive development also somewhat reflects the pattern of data for socio-emotional development. Looking at my notes and the number of “successful” and “challenge/struggle” behaviors alone does not make it appear that there was cognitive growth throughout the program, and it may even look like there was deterioration in cognitive development on a week-to-week basis. However, taking into account some of the biases in my note-taking habits and comparing those with the narratives that the teaching artists and classroom teacher described in their interviews tells a slightly different story.

Ultimately, the cognitive qualitative observations do not reflect the quantitative analysis as strongly as the overall socio-emotional analysis, but both qualitative and quantitative measures suggest improvement in cognitive development, at least in some capacity. Recall that the quantitative analysis did not suggest that either group of students grew considerably more than the other group in the cognitive domain; it seems that the qualitative observations also depict that trend. Taking all of the qualitative data into consideration, both groups appeared to improve somewhat in cognitive development, but the difference was not as drastic between groups as the socio-emotional component.
Thus, we can state that cognitive development was not harmed by the program, and that dance potentially correlated with an improvement in cognitive development.

Motor Development

As I was analyzing my notes about motor development, several things immediately stood out to me. The first was that I made significantly more observations about movement than I did about either socio-emotional or cognitive development. I coded a total of 276 observations, with 168 about the students with special needs and 108 about the peer models (see Figure 27). I also had a similar distribution of “successful” and “challenge/struggle” observations for the students with special needs (although slightly more “challenge/struggle” ones). For the peer models, I primarily recorded “successful” observations. I also noticed that the language that I used in my notes was slightly different than for the other categories of observation. Whereas I would typically only point out a single student in my notes for both cognitive and socio-emotional observations, I was usually more specific about the number of children who were or were not doing something in my motor observations. My level of detail regarding which children were successfully performing which motor exercises resulted in a much higher total number of observations. I attribute that to my training and experience tracking motor development – I was more comfortable with the language and material that goes with movement, and I was more attuned to nuances in the children’s behavior.

In coding written observations, I came up with eight major categories of observations, two of which had a subcategory (see Table 4). The first major trend had to do with gross motor skills, or the ability to move the whole body in coordination. Many of the other categories aligned with the types of movement measured in the movement
rubrics; these included head-tail/spinal movement, upper-lower movement, right/left body halves with a subcategory for galloping, and cross-lateral movement (I included Figure 27. Total Movement Observations)

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<tbody>
<tr>
<td>Total Movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>30</td>
<td>79</td>
<td>87</td>
<td>75</td>
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specific core-distal/whole body movement within the gross motor category). For all of the aforementioned categories, “successful” observations were if a student was successfully able to execute the specified movement, and “challenge/struggle” observations occurred when they visibly struggled or did not quite complete the movement as expected.

I also had a specific category for locomotor movements, which usually pertained to the follow-the-leader exercise that the teaching artists did at the beginning of every class. Since most students were mobile enough to at least walk around, I included a subcategory for locomotor movements with the specific motor patterns (i.e. marching feet, tip-toe with fingers reaching to the ceiling, arms and legs reaching wide). I had only “successful” observations in the simple locomotor category, but I noted if the students were unable to correctly execute all or part of the specific instructions (a student was on
his tip-toes but was not reaching his arms in the air, or a student was simply walking, for example). There were several occasions that I noted whether or not a student needed a teacher’s help to perform an exercise, so I created an “Independence” category to denote the level of teacher intervention that I recorded. Finally, I created an “Improvement”

Table 4. Movement Observational Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1. Gross Motor</td>
<td><strong>Successful</strong>: ability to move large body parts in coordination – i.e. arms, legs – and perform large body movements</td>
</tr>
<tr>
<td></td>
<td><strong>Challenge/struggle</strong>: students struggle or are unable to coordinate whole body movements</td>
</tr>
<tr>
<td>2. Locomotor</td>
<td><strong>Successful</strong>: students can effectively move through general space</td>
</tr>
<tr>
<td>a. Subcategory:</td>
<td>- <strong>Subcategory</strong>: students can coordinate specific movements as instructed while moving through general space – i.e. marching feet while swinging arms, tip toe feet with arms stretched high</td>
</tr>
<tr>
<td>Locomotor with Specific Movements</td>
<td><strong>Challenge/struggle</strong>: students struggle or are unable to move through general space, show challenges walking</td>
</tr>
<tr>
<td></td>
<td>- <strong>Subcategory</strong>: students are able to move through space but unable to coordinate specific movements with locomotion</td>
</tr>
<tr>
<td>3. Head-tail Movement</td>
<td><strong>Successful</strong>: students show ability to articulate movement through spine, such as arch and contract backs or wiggle</td>
</tr>
<tr>
<td></td>
<td><strong>Challenge/struggle</strong>: students struggle or are unable to articulate movement through spine</td>
</tr>
<tr>
<td>4. Upper-lower Movement</td>
<td><strong>Successful</strong>: students can isolate movement in upper and lower bodies, such as moving just arms or just legs or jumping</td>
</tr>
<tr>
<td></td>
<td><strong>Challenge/struggle</strong>: students struggle or are unable to isolate movement in upper and lower bodies</td>
</tr>
</tbody>
</table>
5. Right/left Movement
   a. *Subcategory:* Galloping
   **Successful:** students can isolate movement on right and left side of the body, such as balancing on one leg
   - **Subcategory:** students can gallop in a circle by keeping their bellies facing the middle of the circle and stepping out with one leg and smoothly bringing the other leg to meet it – a “step scoot” motion
   **Challenge/struggle:** students struggle or are unable to isolate movement on right and left side of the body
   - **Subcategory:** students struggle or are unable to gallop correctly

6. Cross-lateral Movement
   **Successful:** students can coordinate movement in opposite body quadrants, such as reaching the right arm to the left toes
   **Challenge/struggle:** students struggle or are unable to coordinate movement in opposite body quadrants

7. Independence
   **Successful:** students able to complete movement activities without the help of a classroom teacher or teaching artist, usually when they previously needed help
   **Challenge/struggle:** students require help from classroom teacher or teaching artists to complete movement activities

8. Improvement*
   **Successful:** students demonstrate progress in motor ability as compared to previous attempts at similar tasks

*No “Challenge/struggle” observations were noted for this category

category to represent every time I suggested that a student had improved on something in some way.

In tracking the weekly pattern of my observations (see Figure 28), I immediately noticed a very different trend from the other areas of development. There seemed to be a lull in the middle of the residency where I did not make as many movement observations (looking back, it was when the two new students arrived, so I was more focused on the
socio-emotional and cognitive aspects for them and the rest of the students). However, in contrast to the other development areas, I noticed a spike in “successful” observations at the end, and especially in the final class. The upward trend is likely due to the fact that rather than just recording the students that were unable to do things, I usually documented the whole class’s motor abilities, both successful and challenging. For future research, I will apply that kind of detail and specificity to other kinds of observations in order to get a more accurate picture of the class.

**Figure 28. Number of Movement Observations by Week**

![Number of Movement Observations by Week](chart)

*Gross Motor and Locomotor Ability*

When separating the data categories to look more closely at specific trends, I decided to group the gross motor and locomotor categories together to get an idea of the students’ movement on a larger scale (see Figure 29). While all of the students excelled in general at locomotion (moving through space rather than staying in one spot), I often noted that the students with special needs struggled to correctly execute all of the
movements together. Sometimes that was due to a lack of coordination, and other times it seemed like a child was concentrating so hard on getting his/her feet correct that the arms and upper body were not engaged. For example, one of the students with special needs, “Ryan,” was often very intensely focused on his feet – whether that was tip-toeing, stepping his feet out wide, etc. – that he would forget to extend his arms, or he would only extend them halfway rather than extending through his joints and reaching all the way through his fingertips. Though he was adept at the locomotor aspect of the movement, the coordination was not quite there, especially at the beginning of the residency. I remember that the peer models tended to get it pretty quickly, but in my observations I was more likely to focus on the group of students with special needs; their movements were more nuanced and took me longer to record.

Figure 29. Movement Observations: Gross Motor and Locomotor
When looking at my notes from a week-to-week standpoint, it is interesting to point out that the students with special needs showed a total of 15 “successful” behaviors in gross motor skills throughout the residency. Though I documented “challenge/struggle” gross motor behaviors in the first weeks, I did not have “successful” observations until Week 5. Thus, 14 out of the 15 “successful” observations occurred within the last half of the residency (Weeks 6-10). There were also an increased number of “struggle” behaviors in the second half of the residency, but there were more “successful” behaviors than “struggles,” which indicates that the class of students with special needs demonstrated ample growth in gross motor ability (see Figure 30). Locomotor observations were similar in the first and second halves of the residency for both groups – there were approximately equal observations for “success” and “struggles” in the first and last halves of the residency – but the gross motor category stood out as a large area of growth particularly for the students with special needs. Thus, based on my
observations, “Dancing for Development” could potentially positively influence gross motor development.

**Movement Categories: Head-Tail, Upper-Lower, Right/Left, and Cross/Lateral**

To understand the rest of the students’ movement abilities, I decided to examine all of the specific classifications of movements together. I charted my observations for head-tail, upper-lower, right/left, and cross-lateral together to see how they generally compared to one another (see Figure 31). Based on what I documented, it appears that in general, all of the students struggled the most with right/left movement. Often, I recorded that the students struggled with the seated stretch that involved right/left body halves.

**Figure 31. Movement Observations: Categorical**

![Movement Observations: Categorical](image)

Typically, the students would be in their ‘turtle shells’ on the floor, sitting upright while hugging their knees to their chests. The right/left stretch attempted to get the students to isolate one half of their body, so the teaching artists would prompt them to “stretch one turtle arm and the same turtle leg” (extending their right arm and right leg while keeping...
their left arm and left leg close to their center). The biggest struggle that I noticed is that a student would stretch his/her arm, but fail to stretch his/her leg at the same time, which led me to record a “challenge/struggle” observation. However, once again, it is important to consider that the students with special needs had zero “successful” right/left observations in the first five weeks of the program, so all of the “successful” observations charted in Figure 31 took place in the latter half. Furthermore, 20 of the right/left “challenge/struggle” observations for the students with special needs took place in the first half, while 18 took place in the second half. That trend is explicitly illustrated when looking at galloping, specifically (see Figure 32). At the beginning of the program, most students, both students with special needs and peer models, were unable to gallop correctly. They galloped with one foot in front of the other, moving forward toward the person in front of them, which was a cross-lateral rather than right/left movement. The teaching artists asked them to gallop so that they moved sideways, with their belly buttons facing the center of the circle the whole time. In the first half of the program, very few students were able to gallop correctly, whereas at the end of the program, several students were competent and consistently able to execute galloping properly. That is evidenced both in the increase in “successful” observations and the decrease in “challenge/struggle” observations for both groups from the first to the second half of the program. The overall trend in right/left motor skills showed a very similar pattern. Thus, since the number of “successful” observations increased while the number of “challenge/struggle” observations decreased, it is likely that the program positively influences motor development in the right/left category.
Another interesting trend in my observations as shown in Figure 31 is the difference between the two groups in cross-lateral ability. In this sense, I meant stationary cross-lateral movements that involve crossing midline, such as reaching hands to opposite shoulders so that the arms are crossed in front of the chest, or reaching one hand to the opposite toes. Most students were able to execute locomotor cross-lateral movement, because they all walked into class and moved cross-laterally during the locomotor exercises. However, it appears that when not moving in general space, the students with special needs struggled more with cross-lateral movements than the peer models.

Typically, the teaching artists consider cross-lateral movement to be the most complicated of the categories; Dr. Martha Eddy (2012) also considers it to be the final phase of development. As per my documentation, that was the only other movement category (other than right/left) that the students with special needs had fewer “successful” and more “challenge/struggle” observations as compared to the peer models, as well as more “challenge/struggle” observations than “successful” within their group. Yet
breaking it down by weeks, the students with special needs increased from zero
“successful” behaviors in the first half to one “successful” behavior in the second half,
and decreased from three “challenge/struggle” behaviors in the first half to zero
“challenge/struggle” behaviors in the second half. The peer models also increased from
four “successful” observations to twelve “successful” observations in the second half, and
had zero “challenge/struggle” observations at all (see Figure 33). Therefore, though
slight, it does appear that there was improvement in motor development for both groups.

Figure 33. Cross-Lateral Development

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<tbody>
<tr>
<td>Number of Observations Recorded</td>
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<td>0</td>
<td>0</td>
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<td>Weeks 6-10</td>
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Looking at the other movement categories, the whole class generally seemed to be
competent in head-tail (such as rolling like a ball or articulating the spine) and upper-
lower movements (moving the arms separately from the legs, as in jumping). The only
observation that really stood out to me in either of those categories was for “Richard,”
when he was crawling by himself. He was sliding on the ground doing an army crawl
(classified in this case as upper-lower movement), smiling bigger than I had ever seen
him smile, and it was the first time I saw him really excel at what the rest of the class was
doing. He also got very excited about jumping during Week 9, and that same smile came out again. His face was normally slack and showed flat affect, so to see that kind of a smile on his face was striking, and a lot of the time it occurred when he knew he was able to execute a movement without the teacher’s help (even if he didn’t always perform the movements perfectly). That was by far the most fun thing for me to watch.

*Independence*

Another interesting trend that came out in my notes was the theme of independence. Especially for the students with special needs, I often specified that a student did something with a teacher’s help. I would also note that a student was able to do something by him/herself, as with “Richard’s” crawling. I noted one observation in Week 4 of a peer model needing teacher assistance, but apart from that, all of my “Independence” observations pertained to students with special needs. In this case, a “successful” observation was a student not needing help from a teacher, usually for something that he/she had previously needed assistance with. A “challenge/struggle” observation represented a student needing assistance from a teacher. Figure 34 demonstrates the students with special needs’ progress over the ten weeks – in general, their level of motor independence increased from the first to the second half of the residency. To me, that demonstrates a very important measure of growth.

The classroom teacher, “Amy,” alluded to the growth in independence in her students when she stated that the program helped to give students the freedom to express things they might not otherwise have been able to. “Leslie” also noticed that the students tended to be able to generate their own movements toward the end of the residency, which speaks to the independence piece as well. There are numerous implications for
increased independence, with communication and expression being perhaps the most directly applicable. If students, especially those who are nonverbal, are able to independently perform a range movements and gestures, that opens up a whole medium of communication that they would not otherwise be able to engage in.

Figure 34. Independence in Students with Special Needs

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<th>Independence in Students with Special Needs</th>
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<td><strong>Number of Observations Recorded</strong></td>
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<td><strong>Weeks 6-10</strong></td>
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**Improvement**

Finally, one of the greatest benefits to having my own field notes was that I could note improvement even where the quantitative data could not. Recall that the teaching artists were able to mark student movement in “Tries,” “Completes,” or “Exceeds Expectations” categories. If a student was unable to complete a movement, the teaching artist checked the “Tries” column. However, that did not always detect the amount of improvement that took place. “Ryan,” for example, struggled with the gross motor coordination of moving both his arms and his legs during locomotor movement. By the end of the residency, he was still having trouble correctly executing some of those
movements, so the teaching artists marked him as “Tries” for that category. Yet in my notes, I was able to denote that by Week 4, he was reaching his left arm wide, but not his right arm, and in Week 5 he was “doing a much better job coordinating hands + feet” even though he needed help from the teacher. Since he wasn’t exactly completing the movements entirely on his own, he would still be marked as “Tries” in the movement rubric, which makes it appear that he didn’t improve at all – he couldn’t “complete” the movements during the first observation or at the final observation. However, my notes allowed me to document his progress; he did, in fact, improve, but just not to the point where the movement rubrics picked up on it. I noticed several patterns like “Ryan’s” throughout the residency, and I usually wrote down any time I noticed a student did something better than he/she had before.

Figure 35 illustrates my observations of improvement. I had significantly more observations for the students with special needs than the peer models; this is likely because I was not only more focused on their motor development in general, but also because they had more room to improve from the beginning of the residency to the end. These results contrast what the quantitative results depicted. Based on the movement rubrics, everyone improved in motor development, but the peer models demonstrated more growth than the students with special needs. However, as I explained with “Ryan’s” example, that is likely because the movement rubrics did not pick up on the smaller improvements that the students made over the ten-week program. Perhaps the amount of growth was still larger for the peer models, but based on my observations, there was still an ample amount of improvement for the students with special needs.
Another implication to consider when analyzing the difference between the quantitative and qualitative trends in both groups of students is the idea, supported by literature, that the students with special needs may take longer to learn than the peer models (Gindis, 1995; Hartmann, 2015). The teaching artists also mentioned that they noticed that trend; “Leslie” mentioned that sometimes “you may still have to take that extra time to get everyone on board to do the locomotor or whatever it is.” “Susan” even mentioned “Ryan’s” case specifically, and noted that “it takes him a minute” to realize that we’ve moved on to another exercise or type of locomotor movement. When I asked if the teaching artists had seen a difference in the amount of improvement in motor development between the groups, “Susan” answered, “The typical kids I feel like have gone, have moved a little faster with the motor development.” Perhaps the students with special needs simply needed more time to adjust and show the improvement that the peer models seemed to demonstrate more quickly. It would be interesting to see if a longer
residency bridged the gap between the two groups more effectively than the ten-week residency.

Conclusion

In sum, it seems clear, based on both my observations and the quantitative data, that there were improvements in motor development throughout the residency. Since the motor development directly relates to dance and creative movement, it makes sense that the biggest increase in development would appear in the motor domain. However, there are some interesting differences in measurement between the qualitative and quantitative procedures. For example, the two kinds of data do not converge when it comes to which group improved more. Furthermore, in the quantitative data, it looks like the students with special needs improved until the third observation (Week 7) and then declined slightly, while my field observations show a large and consistent increase in “successful” observations from Week 7 to Week 10. That might suggest some measurement implications for future research. Yet it is encouraging to note that despite nuanced differences in the data, all of the data shows general and obvious improvement in motor abilities for both groups. Thus, we can cautiously interpret the program as being beneficial to motor development.
Chapter 6: Holistic Analysis and Study Limitations

Both postpositivist and constructivist ontologies and epistemologies emerge in my data collection and analysis. Postpositivist procedures exist throughout the methodology of the study – I primarily used the scientific method to situate and conduct my research. I also relied heavily on postpositivism for my quantitative analysis. My use of statistics to approximate the “truth” of the development in the class was influenced by postpositivism, and I was most comfortable with those methods throughout the data analysis. Constructivism, however, was evident in my qualitative analysis. I was very cognizant of my biases and of the lens through which I interpreted the data. I also recognized that my notes and observations may not exactly reflect what the teaching artists or classroom teacher noticed or valued, so it became essential for me to juxtapose my notes and the interviews to get a complete picture of the classroom narrative. The following discussion will summarize my data holistically.

Holistic Analysis

By examining all forms of data analysis for each development category in aggregate, it appears that “Dancing for Development” correlates with a generally positive influence on development in all areas of interest: socio-emotional, cognitive, and motor domains. Though not always clearly evident in field observations, taking all qualitative data in conjunction with the quantitative data paints a clear picture of the classroom
narrative; students improved in socio-emotional, cognitive, and motor skills by the end of the residency. The qualitative and quantitative data generally reinforce one another as well. While the trends in qualitative and quantitative data do not always mirror each other exactly, the biggest difference occurred within motor development, and that discrepancy had to do with which group improved the most dramatically. However, that incongruity could partially be explained by the measurement techniques for motor development, as discussed in the previous section. Thus, there was no indication in the data as a whole that the children did not improve in any development areas.

Both the socio-emotional and the cognitive quantitative and qualitative data show a trend that was not as clearly evident in the motor development data. According to the dance program’s surveys, the students with special needs were somewhat able to bridge the gap between the pre- and post-observations in both development areas; that trend was reflected in the qualitative measurements as well. The quantitative socio-emotional development surveys showed that the students with special needs’ scores were on average about 52% of the peer models’ pre- socio-emotional scores (an average of score of 15.9 for students with special needs versus an average score of 30.4 for peer models), and that increased to 77% for the post-surveys (average score of 26.9 for students with special needs versus an average score of 34.9 for peer models). The narratives of particular children that improved significantly, such as “Oliver” (see Figure 19), also demonstrate this “bridging the gap” phenomenon. For cognitive analysis, though it did not quantitatively appear that one group grew significantly more than the other, the students with special needs’ scores increased from 31% of the peer models’ scores (average score of 15 for students with special needs versus an average score of 47.9 for peer models) to
61% (average score of 34.5 for students with special needs versus an average score of 57.6 for peer models) from pre- to post-residency. The trends of bridging the gap are partly due to the ceiling effect; the peer models did not have as far to go in terms of improvement as compared to the students with special needs. However, the program data showed that after the residency, the students with special needs were able to perform at a level closer to that of the peer models than before the program, which indicates that there was more than just maturation occurring for the students with special needs throughout the program. In conclusion, all data describe a similar narrative: the students who participated in the “Dancing for Development” program experienced gains in socio-emotional, cognitive, and motor development throughout the residency.

Limitations of the Study

Though there is strong evidence that the “Dancing for Development” program correlates with improvement in socio-emotional, cognitive, and motor development areas, there are several limitations that prevent me from inferring causation; I cannot claim that the dance program caused the gains in development. There were several weaknesses in study design that diminish internal validity. For example, the sample size for the group was small, which limits the statistical power of the quantitative data. Because of the small sample, it was difficult to ensure the groups had equal variances, which may lead to skewed statistical results. Those threats are particularly relevant to the regression analyses – a larger sample size would allow for more accurate statistical regression models and thus provide a better understanding of how several variables (i.e. parent support, age, attendance) influence development. However, effects are harder to detect with smaller sample sizes, so the fact that many of the statistical tests reached
significance indicates that there were differences between the groups as well as growth from the pre- to post-tests for all areas of development.

The absence of a control group also weakens internal validity. Since the preschool years are a time of rapid development for children, it is possible that the results from the study were simply due to maturation. Because the survey took place over time, maturation threats are especially salient; the students were already developing, and thus the research data may have identified changes that would have occurred naturally and without the influence of “Dancing for Development.” However, due to the “bridging the gap” phenomenon discussed in the previous section, it appears that some of the results were not simply maturation. The students with special needs improved more than they would have if the program had no effect – otherwise, the bridging the gap trend would not have emerged in the data. Thus, though we cannot determine the magnitude of the effect size, it is likely that maturation was not the sole reason for the observed gains in development.

Confounding variables present yet another issue for this research. I did not collect data about some of the outside information that would have been relevant to discovering whether the program is truly effective. For example, it is possible that some of the students with special needs participated in other kinds of therapy that influenced their development. Due to privacy laws, I did not have information about the specific needs or diagnoses of the students, and I chose not to ask the parents about interventions outside of school. Variables such as parent involvement, family lifestyle, and socio-economic status also directly impact a child’s development, and I did not collect data about those items. Even if I had collected information about potential confounding variables, once again, the
sample size prevented me from being able to run an accurate regression model that explained whether those variables were influential. Thus, due to the lack of control for potential confounds, the strongest claim this research can make is that the program correlates with positive influences in development.

There were also some issues with measurement throughout the research, both quantitative and qualitative. I have already described my personal biases in making field observations – I did not document every single child that was consistently on task or performing activities correctly, but rather was more likely to single out the students that were not behaving as expected. It was my first attempt at taking field notes, so I was not well-versed in effective observation techniques. I also had the bias of knowing which students were in the special needs group and which students were peer models, so I focused my attention on the students with special needs more so than on the peer models, which may have further skewed the documented observations.

The movement rubrics presented another obstacle for measurement. Though they are effective for the needs of the teaching artists and certainly give a general sense of the students’ motor development, it was difficult with such a small sample to account for small differences in improvement. There was also an issue of inter-rater reliability. One teaching artist tended to check more boxes than the other teaching artist, so that made a difference in the counted “scores” for each student. If “Tries” was one point, “Completes” was two points, and “Exceeds Expectations” was three points, and one teaching artist documented more check marks than the other teaching artist, that could inflate the scores of the first teaching artist without accurately reflecting the “true” level of development in comparison to the second teaching artist. I tried to account for that in
my calculations by converting everything to a percentage, but that does not necessarily eliminate the issue entirely. It also randomly worked out that one teaching artist recorded data for primarily students with special needs, and the other teaching artist recorded data primarily for peer models. To get a more accurate measure of the groups, there should have been a more equal distribution of the two groups among the two teaching artists.

Finally, there were several inconsistencies within “Amy’s” class in particular that might have an effect on the observed results. “Amy’s” class received a ten-week program – one half-hour class per week for ten weeks. Usually, those weeks happen consecutively, with maybe a one-week break once or twice in the middle of the program. Since “Amy’s” class was on a Monday, there were several holidays and professional development days that extended the program to ten classes over the course of sixteen weeks. The largest number of consecutive classes was only three, which is much smaller than usual. It is difficult to ascertain whether the schedule affected development differently than other residencies, because the delivery of the program was not as consistent as it is meant to be. Did the students suffer from having an inconsistent schedule? Or did it help their retention and improve development because the program was delivered over a longer period of time? Based on the information available, I am unable to determine the answers to those questions.

It is also important to note that the first day of the residency occurred on the first day of school after winter break. Several students did not have their permission forms signed that day, so the dance class had only five students in attendance. The students did not have name tags, so it was difficult for the teaching artists to accurately observe and record the students’ movement on the movement rubrics, and it was difficult for me to
take specific notes about each student. In other residencies, usually most, if not all, students are present on the first day, so that was an unusual factor for this class as well. There was also one day in the middle of the residency when the students had a late arrival at the school. That caused them to be late to the gym for “Dancing for Development,” which resulted in shortened dance class time for that day. Though I kept track of attendance, it is possible that the anomalies in the class schedule had an effect that was different from other residencies, but that I was unable to record since there was not a control group.

Despite the many limitations of this research, it is clear at the very least that the “Dancing for Development” program does not have an adverse impact on development, and even correlates with gains in socio-emotional, cognitive, and motor development. Though the level of control was not strong enough to be confident about causality, the overwhelmingly positive comments by the classroom teacher and teaching artists, as well as the statistical analyses describing an improvement in development, suggest that the program could be related to increased development in preschool children, both peer models and students with special needs. More research will be necessary to determine effect size and confirm causality.
Chapter 7: Implications of Results

In considering practical implications of this research, I discovered two major categories of effect. The first related back to the literature and what previous research has said about the use of dance in classrooms and as a therapy for students with special needs. Connections to the literature suggest that the program can be effective and important in integrated classroom settings. The second set of implications I identified were relevant for teaching artists and future residencies of the “Dancing for Development” program. These had to do with how one would go about teaching the program in an integrated or specifically special needs classroom, and thus suggest some modifications that teaching artists should make in different settings. The following discussion will explore both of these sets of implications in detail.

Implications Based on Literature

Though the biology and physiology of Autism Spectrum Disorder is not entirely understood, the literature does suggest scientific evidence regarding some of the deficits that are commonly associated with the disorder. Recall that some researchers from a Piagetian perspective suggest there is a cognitive deficit at the sensorimotor level, which hinders the ability to perform operative functioning (assigning meaning to symbols), consequently affecting conceptual, symbolic, and social skills (Morgan, 1986). Mundy et al. (1986) and Mosely et al. (2015) both found evidence that children with ASD also
exhibit deficits in affective, empathic, or socio-emotional development and skills. Thus, two major areas where there will likely be a gap between students with ASD and their typically developing peers are in cognitive and socio-emotional development. Based on the results of this study, a program like “Dancing for Development” can serve as an intervention in early childhood that may help to bridge the gap in developmental performance for these two populations. That is especially true for socio-emotional development; both qualitative and quantitative results suggest that the students with special needs progressed significantly more in socio-emotional development than their peers. From a policy standpoint, that makes a strong case for increasing the accessibility of dance programs to students in public schools.

*Implications of Learning Theories: Vygotsky*

It is also interesting to apply the three major learning theories discussed in this thesis’ literature review to the “Dancing for Development” program to see how well they align. For example, some of Vygotsky’s major points about educating students with special needs involved providing “modified and alternative educational methods…a differentiated curriculum…and simply more time to learn” (Gindis, 1995, p. 79). “Dancing for Development” was certainly an alternative form of teaching and content reinforcement than a traditional classroom. Movement gave the students a different way to interact and engage with the material that they discussed in their classroom, and it also likely stimulated motor development that would not happen without the opportunity to get up and move. The general classroom narrative also reflected the idea that some children needed more time than others to learn and to excel at the movements. “Ryan,” for example, took a bit longer to respond to movement prompts or switch gears during the
locomotor exercises. However, the teaching artists were able to adapt to that and usually give the students some extra time to understand what they were asking and to follow through with it.

Finally, Vygotsky’s idea of defining children from their strengths rather than weaknesses was also evident within the dance program. The teaching artists often noticed when students that normally struggled excelled on different activities, and they made a point to review those activities often so that students had the chance to demonstrate their strengths. They also never told a child outright that he/she was doing something incorrectly; rather, they used gentle suggestions to get them to correct their movements or simply praised them for what they were doing well. It is clear that “Dancing for Development” included many aspects of Vygotsky’s paradigm for special education, and thus aligns with a successful method for educating students with special needs.

**Implications of Learning Theories: Gardner**

Gardner’s (1998, 2011) Theory of Multiple Intelligences (MI) posits that people have no less than eight intelligences, few of which are regularly fostered and assessed in the classroom. Some of these, such as kinesthetic intelligence, lend themselves to dance and movement. Based on the movement analysis of the “Dancing for Development” program, it appears that as a group, the students demonstrated increased strengths in kinesthetic intelligence (noted above as improved motor development). Because there was an accompanist and music associated with every activity, it is not unreasonable to think that musical intelligence was also fostered by the program. Though I did not measure data specifically relevant to musical intelligence, I did record in my notes that students were able to clap on beat, and that some students were able to change their own
movements when the music changed, which represents some level of musical awareness and competency as well.

Due to the significant increase in socio-emotional development for both groups (and especially for the students with special needs), it is also likely that the dance program correlated with increases in the personal intelligences as well. Communication is a big part of the personal intelligences, and there was evidence that the dance program helped students to be able to express themselves more freely, as “Amy” mentioned in her interview. Furthermore, Gardner (2011) explicitly stated that the arts (and dance, more specifically) relate to a lot of the less conventional intelligences that are not emphasized in the classroom. Thus, we can confidently conclude that the “Dancing for Development” program also aligns with Gardner’s MI Theory.

*Implications of Learning Theories: UDL*

Universal Design for Learning (UDL) was the third major learning framework I discussed in my literature review. Recall that there are three major tenets of UDL: all students can become 1) resourceful and knowledgeable learners, 2) strategic and goal directed learners, and 3) purposeful and motivated learners (CAST, 2014). There are specific strategies that instructors should employ to cultivate each of the three major premises (Hartmann, 2015), and without specifically intending to, “Dancing for Development” touched on strategies for each of them. For example, to provide multiple means of representation (Principle 1), the teaching artists used props and pictures to engage the students. During the bug unit, for example, teaching artists provided pictures of bugs on note cards that they would refer to when discussing how bugs moved. When the students danced like butterflies, the teaching artists used scarves as props for butterfly
wings – holding those helped some students to extend their arms all the way or coordinate flapping movements with their arms. Having the tactile representation of wings helped the students to understand how the butterflies moved and allowed them to translate that information to their own bodies.

Providing multiple means of action and expression (Principle 2) is inherent in the program; students are expected to use dance and movement as a form of communication in addition to verbal expression. For example, when he was asked how an owl moves, “Ryan” was able to express the answer by making a swooping motion with his body, and the teachers accepted that answer even though it was nonverbal. Essentially, the whole program is a different way to engage in learning and development than the traditional classroom, so the second principle of UDL is addressed in every class.

Finally, the teaching artists provided multiple means of engagement (Principle 3) when they allowed students to make choices and have some level of autonomy. Principle 3 was especially evident in the across-the-floor solos; students could choose (from a set of options) how they wanted to move across the floor, and the teaching artists supported whatever decision the students made. The teaching artists also used the concept of choice to promote creativity. When talking about shapes, for example, they described what an angular shape was, and then asked the students to make their own angular shape with their bodies rather than copy the one the teaching artists were doing. The students could decide for themselves how they wanted to demonstrate their shapes, and that gave them a level of autonomy in the dance class. Thus, it seems that “Dancing for Development” does an effective job of emphasizing all of the UDL principles. Based on the fact that the dance program specifically aligns with Vygotsky’s paradigm, Gardner’s MI Theory, and
UDL, it is likely an effective form of education for students with special needs, such as ASD. Therefore, once again from a policy standpoint, the major implication is that it can be a successful form of education in the public school pre-kindergarten classroom.

Implications Related to Dance/Movement Therapy

As previously mentioned, most of the literature about dance and ASD comes from Dance/Movement Therapy (DMT). DMT is a highly individualized, usually one-on-one intervention to help children and adults to improve motor skills, social relationships, and sensory-motor abilities. The “Dancing for Development” program is not necessarily as individualized as one-on-one DMT, but it is important to note that the teaching artists did adjust their methods as needed to provide more support for individual students. Additionally, in this class, several students had a lot of one-on-one help from the classroom teacher or her aids, so there was an element of individualized attention for the students that needed it.

Though most existing DMT research is about one participant and one therapist, and not much is available about early childhood education, case studies (Scharoun et al, 2014; Thom, 2010) suggest that DMT can be effective in a group or classroom setting as well. Thom (2010) discussed how she used different yoga poses and movement techniques in her preschool classroom, and she found that it helped the children develop teamwork skills and emotional intelligence abilities such as identifying and expressing emotions. “Dancing for Development” also employed similar methods; yoga poses were a routine part of the seated stretch, for example. The students also were able to develop relationships with the teaching artists, which is an important part of one-on-one DMT therapy. Though it was not specifically a DMT program, some of the elements of
“Dancing for Development” were similar to DMT, and since DMT is recognized as an effective intervention for students with ASD, it can reasonably be concluded that “Dancing for Development” may also be an effective intervention. Therefore, providing similar programs in preschool special needs or inclusion classrooms may have a positive effect on development.

All of the aforementioned connections to the literature suggest that the “Dancing for Development” program is a potentially highly successful and effective way to provide education in a special needs or inclusion setting. Since it aligns with several learning theories that are recognized as effective for students with special needs, and it also provides similar structures, methods, and outcomes as the accredited Dance/Movement Therapy, it is likely that the program can be especially helpful for students with special needs in a preschool setting. Therefore, when considering ways to “bridge the gap” or provide alternative means of education for students that are differently abled, “Dancing for Development” can be an important means to providing educational equality.

Implications for Teaching Artists and Future Residencies

Most of the implications that affect the delivery of the program emerged in the interviews with the teaching artists. Though my field notes and the literature suggest some of the concepts that teaching artists should consider when delivering a residency to an inclusion classroom, I was able to explicitly ask the teaching artists for “Amy’s” class what they had done differently in this residency and how the setting affected their teaching strategies. There arose four main categories for implication (see Table 5): 1) adaptation of material, content, or environment, 2) timing or pacing, 3) specific teaching strategies, and 4) mindset. The following discussion will examine each of those in detail.
Table 5. Implications for Teaching Artists

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<th>Implications for Teaching Artists</th>
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| **1. Adapting material and environment** | • May need to adjust difficulty level of content/movement  
  ○ Differs between classes  
  • May take 1-2 classes to understand class abilities  
  • Ensure no unnecessary distractions in dance environment |
| **2. Timing and Pacing** | • Assume it will take students longer to master content/movement  
  ○ Adjust pacing accordingly  
  • Wait longer before transitioning from one activity to the next |
| **3. Specific Teaching Strategies** | • Regimented, set schedule – do not alter  
  • May need to give more individual attention  
  • Be aware of interactions with students  
  ○ More lenience  
  ○ Language and wording  
  ○ Avoid triggers  
  • Break down concepts into smaller chunks  
  ○ Repetition of smaller concepts  
  • Provide extra encouragement  
  ○ “Roll with them” |
| **4. Mindset** | • Flexibility – thinking on one’s feet  
  • Willingness to adjust lesson plan and teaching strategies  
  • Recognize assumptions  
  ○ Adjust expectations |

**Adapting Material and Environment**

When I first asked the teaching artists about their initial expectations for the class, “Susan” mentioned that she “came into it understanding that there was going to be some things that they’re not, that they weren’t going to be able to do.” In terms of content, it was important for them to be aware that some of the things that the teaching artists might expect all students to have mastered on the first day – marching, tip-toeing, growing and shrinking – might not be so easy for all students in this particular class. “Leslie” discussed that especially at the beginning, it was important to understand that not all
children would immediately pick up on every piece of movement that they were presented, and furthermore, that it would be important to get a sense of the class’ abilities before deciding the best way to adapt lesson plans or content.

For this class in particular, “Leslie” stated that they did not have to adapt the content as much as they initially thought they might. Their biggest alteration was adjusting how much material they got through each day, but the difficulty level was not necessarily lower than for a typical class. For the most part, “Leslie” said they ran the inclusion class like a typical class. They did make the point that they knew this was an inclusion class where the level of disability was mild to moderate rather than severe, so it is important to realize that minimal adaptation may not work as well in an environment that is primarily for students with severe learning needs.

The most significant takeaway regarding adjusting content was to consider the abilities of the class and go from there. It may take a week or two to get an accurate idea of the students’ general level of ability, so having a flexible plan especially for the first few classes is essential. “Leslie’s” strategy was to “throw [the content] at ‘em and see if they can do it, and see if they rise to the occasion.” In that class, for the most part, a lot of them did rise to the occasion, and they were able to meet learning goals such as finishing one story in five weeks. If in other residencies, however, the students are clearly struggling or are not picking up on the movement activities at all, then it will be important for the teaching artists to recognize that and adjust the amount of content or level of difficulty accordingly.

Though it is important to be prepared to adjust the content for a special needs class if necessary, there are also other environmental factors to be aware of. “Leslie”
stated that before teaching the class for the first time, she looked at the dance space a bit more closely in order to discover whether there might be extra distractions in the dance environment. “Amy’s” class took place in the gym, so the walls were bare and aside from a couple of tables, there were no structures or items around the gym; it was more or less a bare room. However, depending on the space available in an institution, “Dancing for Development” might take place in a classroom or another space where there may be more distractions. If that is the case, it will be especially important for the teaching artists to move large and small items out of the way, and perhaps even somehow cover objects (i.e. bookshelves, toy shelves) so they are not visible to the students and thus will not distract them. Gonzalez (2015) describes similar implications for her preschool music and movement program for children with autism. “Leslie” also said it would be important to know if the children used that room for another activity. For example, in the gym, students may be used to being able to go in and immediately run around, while for dance class, the teaching artists want them to come in in a single-file line and then stand quietly to wait for instructions. In that case, it would be especially important for the classroom teacher to make it clear that for dance class, there is a different routine. With that information, the teaching artists will better know what to expect, and thus can plan accordingly.

Timing and Pacing

One of the trends that emerged most frequently in both the literature and my data was the concept of time. Learning theories in the literature suggest that students with special needs often need more time to learn concepts or complete tasks (Gindis, 1995; Hartmann, 2015). The teaching artists stated in the interviews that they expected students
to need more time to get through movement activities, and that the class would generally move at a slower pace than a typical class. For example, the teaching artists mentioned that during the locomotor exercises, they tended to march for a longer time than a typical class before switching to tip-toe feet in order to make sure that all students were marching correctly. Based on the teaching artists’ comments about adapting content, it seemed that for this class, altering the pacing was more important than changing the content of the activities. Though the students took a longer time to correctly execute movements, the movements were not less difficult than those expected of a typical class. Thus, for inclusion classes where students have mild to moderate disabilities, slowing the timing of activities and the pacing of content can be enough to get students engaged and following along correctly.

The pacing element was especially evident with “Ryan.” He usually took more time than his peers to process directions and respond. He tended to watch the teaching artists and his peers intensely for a few moments before attempting whatever movement he was instructed to do, and often by the time he got it, the rest of the class had moved on to something else. Though the teaching artists slowed their pacing for the class, “Ryan” still had a hard time keeping up. I wonder if that is part of the reason he and other students with special needs did not engage in any self-correcting behaviors; they simply did not have enough time to process. Yet some students were able to process and respond to everything as it came and had no trouble following along.

The discrepancy in appropriate pacing presents a challenge for teaching artists; it is important to strike a balance so that students who need it have enough time to comprehend and execute movements while other students who are faster to process do
not get bored with the pace. A solution to the pacing challenge might be to have several levels of difficulty for each movement task. Start with the easiest level, and allow students enough time to master that. For students who quickly master it, show them the next level, and so on, while allowing other students to continue working at the levels they are struggling with. For example, if the teaching artists are working on right/left movements with the students in a standing position, begin by having them reach their right arm and right leg out to the side, with their right leg still touching the floor. The next level of difficulty could be moving the right arm and right leg at the same time from the side to the front of the body, while keeping the right leg on the ground. When they master that, have them balance on the left leg, with the right arm and leg extended out to the side and the left arm hanging still by their side. Then have them perform the same movement of circling the right arm and leg to the front, but this time with the right leg off the ground, balancing entirely on the left leg. Each of those movements engages the right/left movement category in a similar way, but gives students who quickly master the “easier” levels a challenge while allowing the students that need more time to process a chance to develop the same motor coordination skills at their own pace. By having several levels for different activities, teaching artists can ensure that all students are engaged and appropriately challenged by the movement activities.

Teaching Strategies

In addition to adjusting content and pacing, the teaching artists suggested several specific teaching strategies that are helpful for inclusion settings. “Leslie” discussed that special needs classes often have a very regimented schedule, and change can be difficult. Gonzalez (2015) echoes that sentiment – a constant schedule is important for children
with ASD, in particular. Whereas in a typical classroom, it would be fine and even exciting to change the order of activities in the middle of a residency, such a change may not go over as well in a special needs classroom. The teaching artists demonstrated a strictly defined schedule throughout the residency: begin with locomotor, move into seated stretch, review previous content, discuss new content for that day (i.e. *The Mitten*, bugs, butterflies), and end with an across-the-floor solo. The consistency and repetition were important for the students to feel comfortable and to know what to expect every day during dance class.

The teaching artists also noticed that they gave more individual attention to students in this class than they normally would in a typical class. For “Amy’s” class, rather than adjusting the entire lesson plan, they often worked specifically with individuals, or relied on the classroom teacher and her assistants to work with students individually. The individual attention teaching strategy aligns with the principles of Dance/Movement Therapy as well – it was important to the teaching artists to get to know the students and help them to feel safe and comfortable in the dance environment.

Teaching artist/student interactions were also slightly different for the inclusion class versus a typical classroom. “Leslie” pointed out that in a typical class, the teaching artists would “have no problem calling out the kid that’s not doing” the movement activity correctly, and explicitly telling them to pay attention and participate. However, in this class, she said the tried not to get “in their face as much.” In general, the teaching artists were more lenient when students were doing something incorrectly, partly because the teaching artists were not sure if the student had a physical issue that prevented him/her from executing the movement properly. The teaching artists did not want to
make the students feel uncomfortable or bad for not being able to complete a movement. Along similar lines, “Susan” mentioned that she was more aware of her language in the inclusion residency. She was careful of how she worded directions, and always tried to make it clear and easy for the students to understand and follow through with the task. There are also occasions, as “Leslie” described about one of her other residencies, that a student has a fixation on something. If a teacher says a certain word, it might trigger the student to talk about his/her fixation, and the student is unable to focus for the rest of class. Teaching artists should make sure to ask the classroom teachers about any similar situations so that they can avoid language that will serve as a trigger for students. Thus, it is important for teaching artists to be cognizant of the way they interact with the students, especially regarding specific language patterns.

In terms of the content delivery, “Leslie” stated that for “Amy’s” class, the teaching artists broke down the concepts more than they would in a typical classroom. It was apparent that some students in the class truly needed the smaller break-down of movements. “Ryan,” for example, needed help coordinating his upper and lower body during locomotion. For him, it was important that the teaching artists first showed him what to do with his feet, then showed him what to do with his arms, and finally put it together so that he could coordinate his whole body. In typical classes, teaching artists show the students the whole body movements and expect them to pick up on everything right away. Similarly, it was also important for the teaching artists to repeat concepts or review movements more often than in other classes. “Amy” agreed in her interview that the repetition was especially helpful for her students; they benefitted from seeing and practicing movements over and over. Part of that aligns with the slower pacing as well –
if teaching artists are taking more time than usual to review and repeat concepts, that will slow the overall pace of the residency.

Finally, the teaching artists mentioned the significance of being positive and encouraging. In general, the teaching artists attempt to be positive and focus on things that the children do well, but “Leslie” stated that she feels “like they need that maybe even more than a typical class.” For example, to provide encouragement after the students’ solos, “Leslie” and “Susan” told the students that their solos were “the best thing that we’ve seen all day,” regardless of whether or not the movement was “correct.” “Leslie” also talked about how she would “roll with them” more than a typical class. For example, if they were trying to get the students to name bugs, but one student wanted to be a racecar, she might tell that student in a typical class that it isn’t time to be a racecar, or ask the student, “But is a racecar really a bug?” Yet in a special needs setting, she would be more inclined to find a way to support that student’s idea - perhaps the bug is driving a racecar, or they can think of a bug that is fast like a racecar. That kind of positivity and support reflects Vygotsky’s paradigm as well; it is important to consistently praise the students for their strengths and their efforts.

**Mindset**

Perhaps the most important aspect of teaching in a special needs environment, or really any classroom environment, is the teaching artists’ mindset before going into class. However, that can also be the most difficult aspect of one’s teaching to change. One of the fundamental pieces that made the program successful in “Amy’s” class is that the teaching artists came into the classroom with open minds. “Susan” praised “Leslie” for being able to think flexibly, and to think on her feet and abruptly switch gears or continue
with an unplanned activity. Flexibility and openness are extremely important for teaching artists, especially those who work in a special needs setting. There were days when the class simply did not go as planned, but that did not discourage the teaching artists from trying new strategies until something worked. For example, the first day that “Oliver” came into class, it was nearly impossible to hear the teaching artists or the music because “Oliver” was crying so loudly. However, rather than stopping and waiting for him to calm down, they began using gestures and bigger arm movements to communicate what they wanted to the children. It worked, for the most part; the students were able to follow along with locomotor activity as usual.

Like flexibility, it is also important for the teaching artists to be willing to adjust their plan if it does not seem to be working. It is reasonable to think that some teachers come in with a well thought-out and designed lesson plan that they do not want to deviate from. However, in preschool, and especially in a special needs or inclusion setting, class does not always go as planned. The teaching artists should be prepared with a plan B, or at least a willingness to try a new strategy if the original strategy does not appear effective (VSA Ohio, 2015). Being flexible and willing to think on their feet is necessary for teaching artists in inclusion classrooms.

Finally, it is important for teaching artists to recognize their assumptions prior to coming into class. When I asked the teaching artists about their initial expectations for the class, both of them said that they expected the class to move slower and not perform as well as other classes. However, at the end, “Leslie” discussed that she was amazed at how much the students remembered from class to class, and she said she “pretty much ran the class like a typical learning class.” She also said that she adjusted her expectations
for this class as compared to a typical class; she reminded herself that it was alright if not
everyone was looking at her while she was giving a direction, or if the room was not
silent while the teaching artists were talking to the students. Despite the off days or the
additional challenges that the inclusion class presented, “Leslie” said that after employing
all of the aforementioned techniques, in the end, “It was a good class.”
Chapter 8: Conclusion

In today’s society, primary education is considered to be indispensable. As such, it has been the subject of an increasing amount of research and attention in academia. The place and value of arts education in public schools is a matter of constant debate, with advocates arguing for the necessity of integrating arts curricula into the school day, and others demanding that time and resources be spent on STEM (science, technology, engineering, and math) education. While the arts in general are a hot topic for many arts education advocates, dance education is often underrepresented. Though dance in education research is limited, most of it suggests that integrating dance into public school curricula can not only increase student achievement in other subjects, but also in other areas such as socio-emotional development.

Dance has also been shown to serve as an effective intervention for students with developmental disorders such as Autism Spectrum Disorders (ASD). With the rising constituency of students with ASD, it is important to ensure that equal opportunities for education are available for children of all needs and abilities. It is also important that interventions are available in early childhood education settings. This thesis attempted to examine the impact of dance and creative movement on development for preschool children with special needs such as ASD. By providing evidence that creative movement
programs can promote development and be sustainable in a public education setting, it is possible to move toward educational equality for all children.

Summary of Results and Implications

This thesis used qualitative and quantitative methods to measure development for students who participated in the “Dancing for Development” program, a creative movement program delivered by a professional ballet company. Development was measured in three domains: socio-emotional, cognitive, and motor. Surveys, movement rubrics, field observations, and qualitative interviews were used to determine growth in each of the development areas throughout the program. Despite several limitations, the data generally depicted the program’s correlation with gains in all three development areas.

Socio-Emotional Development: Summary

Based on the quantitative surveys, statistical analyses showed that the post survey scores for socio-emotional development were significantly higher than the pre-scores for both classes, both in aggregate and when analyzed separately. The difference in difference tests showed that though both groups increased significantly, the students with special needs exhibited significantly more growth than the peer models. Their scores increased from 52% to 77% of the peer models’ scores, demonstrating a “bridging the gap” effect in socio-emotional development for the students with special needs. The classroom teacher attributes 50% of the students’ growth in socio-emotional development to the dance program.

The qualitative data tell a similar story; the comments from the teaching artists and the classroom teacher are largely positive. Though my own notes showed more
observations of students struggling, I was subject to biases that led me to be more likely to record the struggles than the successes in socio-emotional development. The most positive trend that I noticed was smiles – the children genuinely seemed to enjoy the program. Individual narratives of specific students also suggest that there was significant growth in socio-emotional development. For example, one student was initially unable to be in the room for the program, but by the end was actively participating and even smiling during dance class. Other students evidenced socio-emotional growth through helping behaviors. Both in the residency as well as in “Amy’s” classroom, students became more likely to actively help one another and work together to achieve common goals. Additionally, my qualitative observations as well as the interviews emphasized the increased ability of students to identify and find self-space – by the end of the residency, they were able to navigate the dance space safely without running into other students. Thus, the qualitative observations and quantitative calculations align to show obvious and significant socio-emotional growth from the beginning to the end of the dance program.

Cognitive Development: Summary

Like socio-emotional development, statistical analyses of cognitive items on the student surveys showed that the students’ post-scores were statistically significantly higher than their pre-scores, for the whole class as well as for each group individually. Yet for cognitive development, the difference in difference tests did not suggest that either group grew significantly more than the other. Though the difference in difference test showed a near-significant trend of the special needs students growing more than the peer models, it was not enough to reject the null hypothesis that the groups were different. However, there was a substantial “bridging the gap” phenomenon for cognitive
development, with the students with special needs increasing from 31% to 61% of the peer models’ scores. The regression analysis also showed a difference in growth between the classes, which suggests that there was more growth for the students with special needs. In that regression model, attendance was also significant, which means that the more classes the students attended, the higher the cognitive growth. The classroom teacher attributed 30% of the observed cognitive growth to the “Dancing for Development” program.

Though my field notes were subject to the same biases for cognitive development as for socio-emotional development, the aggregate qualitative data also suggest a trend of improvement in cognitive development. There were several specific areas of cognitive development in which the classroom teacher and teaching artists noticed growth; the classroom teacher noted that the students improved in their ability to follow one-step directions, the teaching artists discussed that they were impressed at the students’ ability to remember previous content, and both the teaching artists and the classroom teacher mentioned that the children were better able to take turns at the end of and after the program. Therefore, there was an overarching trend of cognitive improvement in both qualitative and quantitative data, although the growth for the students with special needs was not quite as great as it was for the socio-emotional component.

**Motor Development: Summary**

The quantitative data from the movement rubrics shows general upward trends in the percentage of movements successfully completed, suggesting growth in motor development for both groups of students. Statistical analysis of the percentage of movements completed (as opposed to movements attempted, but not successfully
executed) in the first observation versus the final observation showed that for the
combined groups, the last percentage of completion was statistically significantly higher
than the first. When the groups were separated, the same was true for the peer models,
but the students with special needs no longer showed significant growth in the percentage
of movements they completed. However, there was one outlier in the group of students
with special needs whose data was not accurately representative of his actual movement
completion. Once his data was removed from the set, the results moved to significance,
suggesting that there was significant growth for both groups of students in the motor
development domain. The difference in difference tests showed that, contrary to previous
developmental trends, the peer models experienced significantly more growth than the
students with special needs; though both groups improved significantly, that difference
was more pronounced for the peer models rather than the students with special needs.
The classroom teacher attributed 70% of the growth in motor development to the dance
program.

Though there were some biases that emerged in the qualitative motor
development field observations, the field notes were substantially more detailed and
specific than they were for previous development areas. The qualitative data showed
overarching improvement for all students, although contrary to the quantitative data, it
suggested that the students with special needs improved more than the peer models.
However, both sets of data show growth for all students, so regardless of which group’s
results were more dramatic, both groups experienced gains in motor development.
Considering all of the major trends for each of the areas of development, it appears that
the program was correlated with obvious and significant gains in socio-emotional, cognitive, and motor development.

**Implications: Summary**

Despite some limitations in the study design, the results suggest several important implications. Since the “Dancing for Development” program aligned with several different learning theories for students with learning support needs, it is likely that it could be an effective way to enhance and improve education for students with special needs such as ASD. The results suggest that the program could help to bridge the gap for students that struggle with socio-emotional or cognitive skills, and thus including similar programs in public schools can help to promote equality of educational opportunities for students of all abilities. From a policy standpoint, educators and administrators should consider this program and similar creative movement programs as tools for the provision of a well-rounded education for all students.

The program observations also revealed several practical implications for teaching artists who deliver the “Dancing for Development” program in an inclusion or special needs setting. For example, it may be necessary for the teaching artists to adjust some of the content of the program, or adapt the dance environment to prevent unnecessary distractions for the students. It will also be important for teaching artists to slow the pacing of the residency to allow for all students to process directions and execute movements correctly. Teaching strategies, such as the ways in which the teaching artists use language or interact with students, may also be slightly different from those in a typical classroom. Finally, it is important for the teaching artists to have an open mind and a positive and flexible mindset when entering into an inclusion classroom.
Personal Learning Outcomes

In addition to gaining detailed insights about the “Dancing for Development” program, I also learned a lot about the research process and about myself. Before beginning my research, I had no experience and very little understanding of qualitative methods and analysis. My research background taught me to value quantitative analysis as the “gold standard” for research, and led me to judge qualitative analysis to be considerably “weaker” than quantitative. As such, I did not value qualitative methods or analysis, and was hesitant to use those methods in my own work.

After learning more about qualitative methods and how they are used, I began to understand them better, and thus to respect them more. I realized that, though it is different from the statistics and the numbers that I am most comfortable with, there are certain benefits and nuances to qualitative research that the numbers alone do not necessarily allow for. In designing my study and employing those methods, my perception of qualitative research drastically changed; I learned just how valuable a qualitative component to a study is. For example, the numbers told me that the students generally experienced growth in development. While that is exciting (and more than I expected to definitively find with such a small sample size), it did not give me any indication of how or why that growth occurred. The qualitative observations and interviews allowed me to understand specific details about the narrative of the program, and I was able to know success stories for specific students, such as “Richard” and “Oliver.” The numbers by themselves gave me no indication of the infectious and tangible joy that “Richard” showed when he was crawling like a mole, or the astonishing and rapid improvement in self-regulation that “Oliver” demonstrated in the short time he
participated in the residency. Narratives like these, along with other details about the class, much more effectively tell the story of the dance program than simply a significant statistical test, and my research is that much stronger because I have the added dimension personal stories that are illuminated through qualitative research.

Not only did my perception of qualitative methods change, but I also learned about techniques to execute them, and about just how challenging that process can be. At the beginning of the residency, I did not have a good idea of an effective way to take notes or manage my observations, and figuring out what worked best took me several weeks. I also gained a lot of insight about the way in which I took notes – it was only after the residency ended and I was attempting to analyze my data that I noticed the inherent biases that polluted nearly all of my observations. It will be essential for me to understand and counter those biases for future research endeavors. Ultimately, engaging in both qualitative and quantitative methods expanded my horizons and greatly improved my research skills. I now fully support the use of mixed methods research in any setting, and I will continue to develop my skills to become a more well-rounded and effective researcher.

Future Research Directions

Perhaps the most significant implication of this Master’s thesis is its applicability to my future research interests, and ultimately my dissertation. Since I hope to continue my research in a similar vein in the future, this thesis essentially served as my pilot study; I realized which techniques worked well, and learned a great number of things that I will alter to strengthen future studies. The three major elements that I will improve for future
research are the study design, the data collection, and my note-taking and field observation methods.

**Study Design**

One of the major weaknesses of this study was its limited sample size – with only one class of fifteen students total, it was difficult to construct an accurate regression model, and the lack of a control group substantially weakened internal validity. Future research should attempt to engage more classes, perhaps in different settings or for different lengths of residencies, to gain a more comprehensive understanding of how the program works. “Dancing for Development” exists in several lengths, and it would be interesting to see what differences in development (if any) exist for students who participate in a program that lasts longer than ten weeks. It would also be beneficial to look at programs that occur in different school settings – head start or community programs vs. preschool classes in elementary schools, urban vs. suburban districts – to control for differences in environment and to identify any implications that align with potential differences.

It would also be important to use a control group to account for potential confounds such as maturation. Though it would be unethical to deny students the program, there are programs that occur throughout the fall, winter, and spring. I could send out evaluation surveys for the students in the spring residencies at the same time as the fall residencies to have a baseline for children that do not receive the program. When the spring residencies receive the program, I can then take their data as I did for the previous classes. If the post-data for the fall residency students is higher than the pre-data from the spring residency students, that indicates that the fall residency’s growth was
more than natural maturation, which implies that “Dancing for Development” influenced the growth in development. With a control group, I will be able to make stronger claims of causation, and thus will gain a better understanding of the magnitude of effect of the program.

Data Sources and Collection

Though this thesis had several sources of data with many levels of analysis, it would be beneficial to gather more data about some of the potential confounding variables that may exist. For example, with parent permission, I might be able to gain access to any standardized testing materials or scores for the children (with names omitted to protect the privacy of the students). If the classroom teachers conduct rigorous and widely accepted standardized tests to measure socio-emotional development, then having access to those results would give me a better understanding of a baseline for socio-emotional skills.

Depending on the type of special needs that the students have, some parents may provide interventions or therapies outside of school. It would be important to collect that kind of information from the parents to understand if there are other influences outside of “Dancing for Development” that may also impact development. Having more detailed information about those kinds of confounding variables will allow me to further estimate the magnitude of the effect size of “Dancing for Development,” as well as more accurately determine causality.

In this thesis, I managed to collect a significant amount of information from the three interviews that I conducted. However, I think it could strengthen the study if I conducted more extensive interviews with the classroom teachers and the teaching artists
prior to the beginning of the program. That will allow me to assess the teachers’
expectations, and can give me a better idea of what kinds of data to look for in my own
field observations on a class by class basis. It also might help to get permission to video
record some of the classes – perhaps the first class, the last class, and one somewhere in
the middle – to calibrate my field observations. Being able to go back and check my
notes against the video would help me to ensure that I am effectively eliminating my
biases in note taking.

Finally, if there is a way to improve inter-rater reliability for the movement
rubrics or at least make the quantitative movement data more sensitive to improvement
for students, that would greatly improve the measurement reliability of the study. For
example, having the teaching artists collaborate when filling out the movement rubrics so
that they are making the same number of marks on their rubrics would allow me to more
effectively calculate the quantitative movement data. Unfortunately, schedules do not
always allow for extra collaboration directly following the class, so it will at least be
necessary to check in with the teaching artists before the end of the residency to assess
their inter-rater reliability. I should also be more diligent about recording small
improvements in my field notes to further determine motor development influences.

Qualitative Process

As this was my first attempt at conducting qualitative research, there were several
things that I can improve upon for future research. Perhaps the most important of these
was my note taking habits. I need to be cognizant of the biases that I hold when making
observations, and I should be much more diligent about recording students who are
excelling or are at least on task most of the time in addition to recording the students who
struggle. It might also benefit me to amend the field notes sheets that I use to take my notes. For this study, I had four blank pages – one for socio-emotional observations, one for cognitive observations, one for movement observations, and one for any other observations that stood out. It might be helpful to record the actual class content in more detail – what exactly are the teaching artists doing specifically – as well as allowing myself room on the sheets to code for trends as I am observing. That will help me to realize what kinds of observations it might be interesting to look for and code in future classes.

Prior to my first class observation, I looked through the literature on child development during preschool years and created an Observational Key for myself (see Appendix A) – it was a sort of cheat sheet for me to refer to that prompted me to note certain developmental indicators or notice any developmental red flags in students. The key that I created for myself was simple and had only basic information, but I did consider it to be helpful in guiding my observations. For future research, I would like to create a more effective Observational Engagement Checklist that will be a simple way to get a general idea of a child’s development. I hope to create the checklist to be generalizable to many settings, so that future researchers or evaluators may use it regardless of what kind of program or environment they are observing. My future research could be an opportunity to pilot the checklist and amend it as needed. By creating a simple and effective Observational Engagement Checklist, I will be making a direct contribution to the larger research field outside of my own discipline.

In conclusion, by adjusting my study design, data collection plan, and my qualitative process, I will be able to develop a strong and internally valid research study
to assess the effects of dance on preschool children with special needs. Ideally, results showing gains in development will provide rigorous empirical evidence that dance is a useful and important subject to include in preschool education, and will help to provide an argument for policy makers to support and invest in the use of dance in public school curricula. In doing so, I will help to bridge the gaps in the existing literature, and I can play at least a small role in ensuring equal educational opportunities for students of all abilities.
References


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Appendix A: Observational Assessment Reference Sheet

<table>
<thead>
<tr>
<th>Cognitive Development Indicators</th>
<th>Socio-Emotional Development Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Can name colors</td>
<td>• Cooperates with others</td>
</tr>
<tr>
<td>• Can count to 10</td>
<td>• Wants to play with other children</td>
</tr>
<tr>
<td>• Sense of time (rhythm?)</td>
<td>• Can stay on topic during conversations</td>
</tr>
<tr>
<td>• Recalls parts of stories</td>
<td>• Healthy interactions with others</td>
</tr>
<tr>
<td>• Knows about things in the home</td>
<td>○ Smiles, hugs</td>
</tr>
<tr>
<td>• Working with each other</td>
<td>○ Asks for help</td>
</tr>
<tr>
<td>• Correcting themselves</td>
<td>• Expresses range of emotions</td>
</tr>
<tr>
<td>• Ability to listen to and follow directions</td>
<td>○ Identifies own emotions</td>
</tr>
<tr>
<td>• Giving appropriate or relevant answers to questions</td>
<td>○ Identifies others’ emotions</td>
</tr>
<tr>
<td>• Knowing shapes</td>
<td>• Self-regulation</td>
</tr>
<tr>
<td>• Able to follow along and participate</td>
<td>○ Calms down on own</td>
</tr>
<tr>
<td></td>
<td>• Empathic behaviors</td>
</tr>
<tr>
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<td>○ Responds appropriately to others</td>
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<th>Cognitive Red Flags</th>
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Appendix B: Interview Transcripts

Interview #1: Teaching Artists, Week 5 – “Leslie and Susan”

Note: the assent script was performed prior to interview, but I wanted to have recorded documentation of the agreement, so I asked again while the audio recording was on.

Me: Okay – hello, welcome to the interview. I appreciate you taking the time to talk with me about things. Um, you are both okay with, um, me recording this, yes?

Leslie: Yes. Are you okay, “Susan?”

Susan: Yes.

Me: Thank you. Alright, perfect, then I will record this for posterity. So the first thing that I wanted to ask you both is just how much time and experience you have working with, um, children and then working specifically with children with special needs, so either one of you can go first.

Leslie: Um, I’ve been teaching – oh my gosh, I figured this out the other day, um, yeah – at least 25 years, so, and I’ve done from, anywhere from the two-and-a-half year olds up through adults. Special needs, I, um, about five years ago I did have one girl with Down’s Syndrome in one of my classes, and just through the years, you kinda know that there’s been that one or other kid, um, but, last year and now this full year I’ve been at a school that, um, I’ve done four classes in a row that are all special needs with some peer models in them. So just here and there.

Me: Okay. And do you have any specific training or anything in working with –

Leslie: Not training specifically. I have, knowing that I was going into this facility I read up on some things just, um, you know, kind of…some parenting books even, uh, you know, how to deal with kids with special needs and how to teach kids with special needs just to kinda give myself a few extra…I’ve pondered going back to school for it, but that’s something that would happen when my kids are a little older too, still, so (laughing)

Me: Yes, understandable. Alright, “Susan,” what about you? I know you went to school for it, so how much experience do you have working with like “typical” kids, and then working specifically with a special needs population?
Susan: Um, typical children I’ve worked with for about ten and a half years, um, mainly with younger children though, so, like, infants birth to two months. Um, the special needs is, again, the same as “Leslie” – it’s kinda been here or there. Um, I’ve had a couple that were just learning delayed, which is interesting because you can spot that kind of thing even at that… certain things even at that young. Um, one really rare one that I saw which I still remember is a little boy with cri-du-chat syndrome.

Me: Oh, interesting. Can you describe that for us please?

Susan: Um, his development in general was very delayed, um, he took until he was about – I want to say a year before he could even, like, sit up. Um, walking did not come until about two. Talking, about three and even then it was very limited. Um, most of the sounds were, as it says, sounded like a cat screaming. Um, he, I mean, his, he just basically was, like, delayed in most things. I mean his body frame and everything like that, like, was, normal, it was just he couldn’t coordinate them and get them to work. But that was a couple years back – I don’t know how he is now.

Me: Interesting. So then, um, did you look, ever, specifically at autism in particular, or just kind of special needs as a whole?

Leslie: Um, the one class, the – one of the first classes that I did, they um, because of privacy they couldn’t tell me specifically “This kid, is, has this,” “This kid deals with this…” But they did say “My whole class is on the spectrum,” so yeah, I did pick up a book on autism and, just to kind of… I have a cousin who’s autistic, but she lives in Florida, so, you know, I don’t deal with her on an every day basis, so I, you know, um, read a little bit more on that so as opposed to, um, like a physical something versus you know, completely a mental versus… cause the kids, there, it can be, it can be that they have a speech impediment. It can be that they have a hearing or a sight difficulty, then, um, to be able to be in this program. So when that teacher said “They’re all on the spectrum” I was like “Okay! That gives us something to work with, to look up.” Um, you know, so just things like, you want, you plan for things to take twice as long than you would for the typical classroom. You know, just, and you know, a couple things like, um, where if it’s somebody with a sensory issue to make sure that you can, if you can try to include that into the lesson so that they can touch or don’t touch or whatever it is, you know. If it’s – if they need to be touching to have something for them to hold. If they, if it’s that they don’t like to be touching, then keep those “good dancing spots” you know, high on the priority list kind of thing. So those are the, you know, so those little kinda hints or, you know, keys to success or whatever – I think is what it was called, you know, helpful hints for success or whatever – you know, kind of a list that you kinda are like “Oh okay.” And things that a lot of them were, like “Ohhh, okay” you know things that maybe, probably we’ve heard before, but just, you know, to have it all in a little list was like, “Okay, I can, I can remember that” kinda thing.

Me: Yeah, absolutely. “Susan,” what about you?
Susan: Um, not necessarily autism in particular. I know, like, going through school and stuff, you have your “Children with Exceptionalities” class, um, and I know that my teacher had a - that had taught me that class had a special, um, focus on autism for a little bit but it was for personal reasons. She chose to kind of extend that chapter a bit more, um, and you know I’ve, I’ve read things online, and I’ve, you know, seen documentaries and things like that on it but as working specifically with autism, it, myself personally, it hasn’t happened as much.

Me: Alright, so then, um, just to kind of get an idea, how long have you two worked together? How many residencies have you done together?

Susan: Three?

Leslie: I was gonna say, yeah, is, is this our fourth, or is this our third?

Susan: I think this is our third because we only – we did – unless you count the practicum experiences, and then it’s like four.

Leslie: Alright, so yeah, so “Susan” was, um, I was one of the teachers that she shadowed, um for however long she was here for her practicum, and then, yeah, and then, yeah so this would be our third together as –

Susan: Like me being in a fully [too quiet to understand the last word]

Me: Okay. And have you worked together with specifically special needs students before or this is your first time?

Leslie: This is the first time with us together, yeah.

Me: Okay. Um, so then, before beginning the residency at all, did you have any expectations about what the class would be like? Did you have any idea of kind of what to expect from the special needs group versus the, um…

Susan: What do you mean? Like information that was given to us or what we had already formed in our mind?

Me: What you had already formed in your mind. So, like, based on the information that you already knew, um, based on the things that you’ve read or whatever it was that you looked at, um, what did you think would be different about this class than a “typical” – quote unquote – class?

Susan: Um, I personally just came into it understanding that there was going to be some things that they’re not, that they weren’t going to be able to do and that things were going
to have to move slower, and that we were going to have to pay a lot more attention individually than what we may have been expecting in a typical learning classroom.

Leslie: Mmhmm. Yeah. I mean, cause we do have a meeting with the classroom teacher ahead of time, but, again, they’re not allowed to give us specifics, so, you know, we kinda knew, you know, that we might have some slow movers, we might, there’s, you know, we might have one that really won’t want to participate, so, yeah, just kinda coming in going “Okay, I know it’s not gonna be everybody on board from day one and we’re probably gonna have to introduce stuff a little bit slower, but let’s see what happens and go from there.” And, you know, and I’m one, I always even with, um, “technique” classes, so to speak, that I teach, I’m always one to say throw it at ‘em and see if they can do it, and see if they rise to the occasion. So I don’t feel like we – I don’t feel like we really adapted our plans, like, going in, we were like “Okay, this is what we want to try to accomplish. If we don’t get from point A to – if we don’t get from point A to point D, and we only get to B, then we’ll just pick it up the next week.” But we went in knowing that we wanted to, you know, like we wanted to finish a book in five weeks, and we did. So, um, we didn’t have to adapt what we wanted to do a whole whole lot.

Susan: Right, well and I love watching you when you come into a class [to Leslie] because we do not have – we don’t have it set out: this is what we’re going to do – this step, this step, this step, this step – in a class. It becomes a: “Well, this seems to be working, we’re gonna keep going with this, off the top of our head.” Like, “well, we kinda need to hit this” and like you’re right with your “let’s see what you can do,” because you just started to do this thing [demonstrating crossing arms to touch opposite shoulders], and I was like “Oh no, crossing, ooh, how many of ‘em are gonna be able to do the cross?” Really? Like arms crossing touching opposite shoulders and then touching the same shoulder back and forth, and lo and behold, probably, what? A good 60-70% of them were able to do it. It was very impressive.

Me: Yeah, absolutely. So then, um, as teachers of preschool children, um, did you after seeing the class a little bit, you know, seeing it for a few weeks, um, what are some things that you’ve noticed, maybe differences between the quote-unquote “typical” children and the children with special needs?

Susan: Um, the typical children are a bit more quick to connect the idea or to follow the direction, um, and also even like eye contact, and like, focus, is a lot more than the um, children that were not the typical learners. It took, like, you would, we’d give an instruction and then it would kinda be like “Oh, hey, hey, can you try that? Oh let’s try this.” And then then they’re “Oh, okay.” Like, I, like, “Ryan.” “Ryan” – he can do it, and he will do it, it just takes him a minute to come to us.

Leslie: Mmhmm. And some – I feel like too, like, I, um, they’re getting to know us, they’re start…you know, we’ve been there for five weeks now. We’ve had a few weeks off within those five weeks, so I feel like they have to learn that we’re not gonna ask them to do something that is gonna hurt, or that they’re really gonna have a hard time
doing. Yes, I feel, I feel like a lot of this, you know, even a hop or something, a lot of them are gonna find that difficult to do, but it’s not something that we are gonna say, “Okay, I know that half of them aren’t gonna be able to hop, but we’re gonna try to make them hop anyway.” You know, it’s, we, think, you know, let’s see, and you know, probably a good, a lot of them…and even in a typical class, asking a four-year-old to hop, a lot of them are not gonna be able to do it right off the bat. And I feel like, too, a lot of, um the, the not so typical learners, they watch their peers, and so some, you know, if they’re not clued in on us, maybe their buddy next to them doing it is what – “oh, oh, okay, he’s rolling, I’ll roll now” kinda thing too, so having –

Susan: Right, well, and then that them helps also make that visual connection with the people to understand that “Okay, you’re asking me to do this, but I’m not sure what you’re talking about, and now I see, oh okay, yeah, I can do that”

Leslie: Right, yeah, even when we’re rolling, or whatever, I think translating it from “adult body to my body – I don’t…oh, oh, but if my friend next to me is doing it, that makes more sense now, cause he’s, cause they’re the same size that I am” kinda thing [laughing]

Me: Right, right. Interesting.

Leslie: You know, and “I see them every day, so I know that they’re not gonna do something completely out of, you know, out of the realm of normalcy” kinda thing.

Susan: They trust them more.

Me: Interesting. So then in terms, just comparing, um, the students and their ability to learn and ability to move in this class, how does that compare to quote unquote “typical” residencies that you’ve done, with primarily students who are developing typically?

Leslie: I think they are more hesitant to try something new, and I don’t know if that is lack of confidence, lack of coordination, you know, general lacking of mental capacity to process, or whatever. Um, but yeah, I just, I just feel like sometimes, you know, it takes kinda, some, you know, it takes us, we have to repeat the instruction, or um, say, when we do a follow, the follow the leader I feel like we maybe are tending to march a little bit longer period of time than we would in a typical, and, you know, because it takes a little bit longer for everybody to actually like get on board. And then, okay, so now we’re gonna tip-toe. Alright, we gotta keep tip-toeing till everybody at least has started to tip-toe before we change. So I think it takes, again, it takes a little bit longer for it to trickle down to everybody in the class. Um. But I don’t feel like we have, or, you know, like, laxed off or slackled off in what we’re asking them to do. We haven’t watered down the lesson plans, we haven’t watered down what we’re asking them to do. We have been using the same lesson plans, the same unit plans that we would use in a typical class. Maybe, but maybe doing less content in one day than we would in a typical class, but not less difficult or, you know, we haven’t changed what we expect them to do, we’ve just
changed kind of the amount of what we’re wanting to accomplish in a day, kinda thing. Does that –

Susan: Cause you asked the question – I’m trying to think, I’m like I really don’t feel like we’ve been doing anything too much more different. And I mean the adjustments that we make for this class can be also applied to any other class – like, if you have a class that isn’t, that’s, you know, kind of wandering, and typical learners that aren’t really paying attention, and, and it’s, you may still have to take that extra time to get everyone on board to do the locomotor or whatever it is. And like, in my opinion, I don’t feel like – other than maybe making things move a little bit slower in some instances, not all, is the only adjustment that we’ve made.

Me: So have you noticed, um, for example, any potential challenges that having a class of atypical learners would present that you wouldn’t necessarily face in a typical classroom?

Susan: Um, some of the children, like, uh, just can’t do what we’re asking them to do, and that’s kind of like something that we can understand, whereas a typical classroom, it would be a little easier to just walk over and help them to like position into whatever, like, if you’re trying to do cat-cow and we can’t, we’re having issues staying on the hands and the knees, and, like making the table top whereas some of the, the kids – A) touching them in that way to try to help them would upset them –

Leslie: Right.

Susan: Or they are still, like, they’re, I’m trying to think – the little one? And he’s always like this on the floor [demonstrating]. And like I feel like trying to ask him to move his body would be physically uncomfortable for him. It’s – we wouldn’t ask him to do that.

Leslie: Yeah. And I, yeah, and I feel like too, because, again, because we don’t know specifically, um, I think going in knowing that there are issues we are, we are gonna be more hesitant to be like, “So and so, I need you to do this now.” Where in a typical learning class we have no problem calling out the kid that’s not doing it to be like “Hey, you need to get your knees down on the floor.” You know, where, um, where we don’t know if maybe there is a physical issue that is keeping them. And, and I think, too, for most of them, as we are asking them to do stuff, we can see – you can see when they’re trying and maybe their body’s just not cooperating yet. You know, like you can, you know, they think that they’re on – that their arms are straight. And, then when you say “Straighten your arms,” they’re looking at you like “What are you talking about, my arms are straight!” You know, and you, you can kinda see that with these guys every now and then, I feel like – cause, and I think, you know, we encourage them, you know, like “Okay, ‘Ryan,’ why don’t you try this.” And, and I feel like you kinda get that look on their face like, “I thought I was doing that.” [laughing] And so then “Oh okay, and then, alright, fine, great that’s it – Good job!” You know, um, but, yeah, so I think just a matter of, again, we are trying to encourage them to do what they can do as opposed to physically moving them themselves to get them to be how we want them to do. Where, in
a, yeah, and we’re just a lot more – classroom – you know, like, there’s a lot more adults in the room too, and I feel like, and I do feel like if we mention a kid, one of the actual classroom teachers will kinda – so if it is something that they can, that they can physically do, I feel like the classroom teachers are kinda manipulating them a little bit, if we would, if we say something. Um, so that, you know, I’m like “Okay, so they can do that, and that teacher can touch them,” but I don’t know, since they don’t know us that well yet, I still don’t think that I would be comfortable, you know, going and trying - you know, like, I have touched a couple of them on the back. Like, for cat cow, you know, like kinda, said, you know, put my finger on their back and said “Lift, try to lift right here.” You know, it it’s, if it’s the person beside me while I’m still doing it – I don’t, I don’t think I’ve ever gotten up, like, and walked across the circle to try and do it to somebody in this class. But, I’ve, you know, like I think I’ve done it to whoever was right beside me a couple times, like “Try to lift right here” just – and that is the most I think I’ve tried to, like, really “correct” quote unquote someone’s movement.

Susan: It’s a big trust thing. Like, I feel like we’re already aware that, that they’re already not going to be as trusting, especially not of us, cause we’re newer, and it might take a little bit longer for trust to build. So we’re like already aware that that’s not –

Leslie: Yeah. And I mean, okay, so thinking now, I have other classes that are, other classes that are a ten-week session, which this class is, that I’ve seen five, possibly six weeks by now, and when we walk in, they’re like “Hi Miss ‘Leslie!’ Hi Mr., hi Miss –” You know, they’re already saying, and this class, you don’t see that.

Susan: Or they come hugging you, like “Hey!”

Leslie: You know, they’re not coming in like “Hey!! Like I remember your name, and I know we’re gonna have fun.” So, um, so that, I think, and so, that, then correlates to, okay, they aren’t remembering us yet, they’re not, you know, so therefore, you know, kinda holding back a little bit on correcting – And, you know, and with “Dancing” – with these classes, there’s not really a whole – it’s more encouraging to try it, to try to do better, I guess is the way to… As opposed to, “You’re doing it wrong, do it this way” it’s, you know, “Try to stretch your leg. Try to stretch your arm. Oh, we’re trying to do opposite arms right now, so switch which arm you have up.” You know, that’s –

Susan: That’s another important thing is, is your wording – is understanding how you need to word it to get them, or to make it easier for them to understand.

Leslie: Yeah, I feel like we’re breaking it down a whole lot more, maybe.

Susan: Yeah, a little bit.

Me: So then, um, you kind of touched on this a little bit already, but I’m curious to know a little bit more about how as teachers, how have your strategies changed for this class, specifically?
Susan: Well, like we’d already said, we kinda understand that some things are gonna take a little bit longer, and we understand that they’re not – that we need to build the trust with them before we can do certain things, and our – the way that we word instructions needs to be a little bit – it needs to be different, and I don’t wanna say, like, dumbed down, because that’s not it, it’s, um, thinking about how they’re going to react to it. Like, you’re trying to make them do butterfly, you know, “Hey, make – can you put the bottoms of your feet together?” Well, if I put the bottoms of my feet together, I can put them together like this [demonstrating] and my legs are straight. And, it’s understanding that, can you make this part of your foot [pointing to the sole of her foot] touch this part of your foot [pointing to other sole of foot] together. And, like, understanding how to make those steps make sense, I guess.

Leslie: And then, yeah, like, we were saying how – not getting in their face as much. I do feel like, you know, with their name tags, it’s good to be able to say their name, you know, “So and so, that looks good; so and so, try this…” Um, and I do feel like, you know, in the grand scheme of things, my expectations going in were, was that this class is not going to perform as well as some of my other classes that I’m doing. You know, so I wasn’t coming in going, “Okay, on day one, I know I’m gonna get them to hop, skip, jump, leap.” You know, or that going into a typical class, you assume that they’re going to be able to march and that they’re going to be able to gallop, and they’re gonna be able to stand and, you know, be still and listen to direction. Which, going into this class, thought maybe not going to have a quiet room, maybe not going to have everyone still while we’re reading a book or giving direction. So just have that in my head, that, you know, that is okay. [laughing]

Susan: That’s how most preschool classrooms are all the time anyway.

Leslie: Yeah, exactly, and to be able to – when – feeling like, you know, making them be still or be quiet for a moment when needed, which, I think like, I think every kid is capable of being, of being quiet and taking direction for – amount of time, you know, some can do it longer than others. So I think, just going in knowing that, let’s just see what happens? Having an open mind, I think, was… and then going “Okay, this class – they’re gonna be fine.” And we can kinda carry on like we would for regular, you know…

Me: So then, thinking about this class specifically and knowing kind of which students are, um, the quote unquote “special needs” students and which students are the “typical” students, um, have you noticed anything about specific students or about just the development of one group versus another within the residency thus far?

Leslie: Well, “Richard” comes to mind, cause he is not very mobile. And I guess, I feel like, he probably could be, you know? [laughing]
Susan: Yeah, I agree with you. I feel like he could be, but I feel like it’s one of those things where, like, if we had the trust with him it would be one of those things where we would have to be like “Okay can you raise your arm and hold it up?” And then we would help him, and it would stay there until we were like, “Okay, now put it down.”

Leslie: Yeah, yeah. So –

Susan: And at that point, it’s us doing it to him, not him doing it for himself.

Leslie: Exactly, exactly. And then even, like, like, “Ryan.” He just, I feel like he’s one, that he like intensely watches everything. And, and I wonder if it is, if he’s processing it all, or whether he just is wanting to, you know – like if it really takes him as long to process: “Okay, they want me to do this…and I, okay, and now I’m gonna get my body to do it.” Or if he really is just doing, “Okay, alright yeah I’ll go ahead and march now.” If, you know, because I feel like he just is so, he usually just seems so intense that I’m like, I’m like, “What is going on in your mind dude? I know you can do it. I’ve seen you do it. Just march!” [laughing]

Susan: That’s the thing! I know, I totally agree! Cause it’s like some days you look at him and he’s just kinda like, he’s like staring definitely at you like “Okay, I see what you’re doing” and then he starts to do it and then he’s still doing it, like continuing that motion, and then we’ve moved on and he’s like so focused on this motion, and then finally he’s noticed that we’ve changed, and then he changes with us. But you know it takes him a minute and I feel like it’s, he’s so, like, stuck on what he’s doing right then that it takes him a minute to break that concentration to look around him and see.

Me: One thing I’ve noticed about him specifically, too, is that he will, um, especially during locomotor, he’ll have the feet great, and his arms will not be completely extended all the way up or he can’t swing ‘em when he marches, so his upper body is kind of, he’s like stuck with that. Or like if he, his reaching out is not extended as much. But his feet are fine.

Susan: It’s taken enough function to be able to get the bottom to work that we can’t also translate that to the top.

Me: Right, right. So that’s – I, I agree with you, and I’ve noticed – I’ve noticed him doing things like that as well. Um, so then, in terms of like, because obviously we want “Dancing with Development” to be successful, quote unquote – we want to see development in the kids. We want to see improvement in cognitive, social-emotional, and motor areas. So have you seen that in these kids? Or have – is there a difference in the amount of improvement that you’ve maybe noticed between the special needs and the typical kids?

Susan: The typical kids I feel like have gone, have moved a little faster with the motor development.
Leslie: Right, yeah.

Susan: On the social-emotional end, though, I feel like we’re, we’re kind of about even because, you know, there were a few kids that would come into class the first two weeks and they were like crying and screaming, or, and like they’d have to be removed or they would have to, like, go sit down because they didn’t want to be there and they didn’t want us to be there, and it was a big deal. And, like as we’ve progressed, they’ve gotten more comfortable and they are participating a bit more and that’s what makes it a bit more obvious that they’re starting to come around.

Leslie: Right. And I feel like, too, I mean, just in general, the, just the fact that we get them to do a follow the leader in a circular pattern. I think that is like, gold star. When you get the entire class at least going in the same direction and in some capacity doing the same thing. So that, we’ve accomplished that without the passing each other or stopping and having somebody crash into you, and all that stuff. And even, you know, kind of the free, free movement portion where we were, we’ve been doing the animals from *The Mitten*. Not so much, you know, everybody converging on one place anymore. I – they were, I mean, this past week they were all, I mean, they were literally from one end of the gym to the other, and I was like, “They’ve found their good dancing spots!” [laughing] You know, “They’re going where there are no other bears crawling, yay!” As opposed to, you know, cause very often they all, you know –

Susan: Yeah. They wanna stay in our little, in our little circle area that we made earlier.

Leslie: Or they’re coming to – towards the teacher that is doing the instruction or whatever. And I felt like, you know, we kinda –

Susan: You’re in a dog pile. Like, “I can’t - I’m trying to show you how to do this, but I can’t because you’re - everyone’s on top of me.” But that happens in normal classrooms too.

Leslie: Right. Find, find where there are no other whatever’s they were, you know, whatever animals we were talking about at the point, you know, find where there aren’t any other, you know, bears crawling. And I did, I remember thinking, “Alright, yeah, nobody is like, crawling on top of each other, yay.” So…and I feel like that, you know, so that’s, that’s spatial awareness, and that, and that, you know, even with, and that was, with a prompt, yeah, obviously fine, but sometimes you say that, and they still, you know, there’s those two best friends that won’t go away, you know, that always have to be, you know, almost hand in hand. And we don’t have that in this class.

Susan: Right. Well, and, even the cognitive – to remember what animals we’d already talked about. I mean, to bring that back up and, and to think about, “Okay, I need to connect what – they’re asking me what animals there were and then they asked me how did that animal move. So now, not only do I have to remember what they were, I also
have to remember how they moved and where they went.” Because then, at the end we had to move to the mitten and we’re connecting that idea of that large awesome sheet [referring to a prop used in the story to represent the mitten] to the part in our story, and, so, I mean, and a lot of ‘em understood that.

Me: Do you see differences in, between the special needs kids and the typical kids when it comes to things like cognitive, uh, application or – we’ve kind of covered social-emotional…

Susan: Kind of. I mean, there’s those, the three typical learners that I can think of and I’m spacing on their names so I can’t remember names to save my life. Um, but, they’re always right on it. Everything’s – they’re doing what we ask them to do, they’re real quick to answer questions. But other than that, it’s kind of hard for me, except for the ones that have very obvious, um, special needs, to distinguish between the ones that are not. Like, cause there are a few that I would think that are typical learners and then I see how they interact, and I’m wondering, okay, they’re – they look like motor-wise that they would be fine, but then at the same time, you’re kind of not participating, you’re kind of not talking, and, and, you’re, you know, lack of eye contact, and all these other signals that I’m like, “I don’t know if you’re in the typical class or not.”

Leslie: Right. Which I think, for us, that’s a good thing. That, so that you’re not, that we don’t have, “This is the list of the typical kids and this is the list of the atypical kids, so we really need to make sure we keep an eye on these guys, and these guys are going to be fine.” Because we go into schools that are typical classes all the time that you are like, “Okay. What is going on with this kid?” Right? You know. Or, yeah, this is a typical – yeah, or, you know –

Susan: The one – the one child that you’re like…

Leslie: Yeah, you know, so I think it’s good. And, in, obviously in dealing with them we’re like, “Okay, yeah, check, check, check, check, check, check. Kinda oh – and then there’s that question mark. Check, check, check, check, question mark.” You know, where we, and we probably both have started sorting them –

Susan: Yeah, in our own minds…

Leslie: when we’re in the room with them, but, um, but yeah, like I wouldn’t, like you said, you know, there’s a few that are vocal, that are much more vocal to answer questions and things like that. But, as, you know, otherwise, there’s not a whole lot of difference where, you know, unless it is, like a truly, a physical issue or, you know, or, that we are seeing.

Susan: Yeah, a very clear – like “Richard,” “Ryan,” and, and um, also like that one that usually has to have her hand held…
Me: “Veronica?”

Susan: “Veronica.” Like, other than her just kinda being all over the place, I wouldn’t think that, that she would have any kind of special need other than the fact that she is just kind of like, “I’m over here, I’m over here, I’m over there.” You know? Like –

Leslie: Which, you know, in other, in other rooms, class, in other classes we were probably like, “Oh, her birthday is, you know, she’s probably young!” You know, kinda, you know, so –

Susan: Because yeah, you do see that in other classes –

Leslie: Like you do the like, “When, when is, when is their birthday? Ohhh – that explains a lot!”

Susan: “That makes sense!”


Susan: There’s always one [trails off – too quiet to hear]

Me: Right, right.

Leslie: Absolutely.

Me: True. So then, I guess I will kind of conclude this interview by asking if there’s anything that you’ve noticed, um, that stands out to you about, um, just the things that you’ve observed in the classroom as you’re teaching? Just, anything that stands out, whether it be about, you know, typical/atypical…

Leslie: I, okay, I just have to say, “Richard’s” smile that one day when we were doing the scooting.

Susan: Yeah, he was so excited – you’re right. I forgot about that.

Leslie: I was like, okay, and in my head I was like, “We need to scoot for a half hour, all day, every day so that he smiles like that every day.” [laughing]

Susan: He was so excited! Wasn’t it the mole crawl?

Leslie: Yeah, it was, yeah, like the little army crawl thing where we were scooting. Oh my gosh, and he was, but, you know, it’s just something like that, where – That is something that, as a teacher, you’re like, “Okay, I made the connection with that kid.” And, so, even, even if we don’t know what’s going on, if we don’t know if cognitively he
knew that he was a mole at that point in time, he was moving, and he was smiling, and he was having fun.

Susan: And he could do that. And he was so excited he could do that.

Leslie: He did it by himself without, you know, none of the teachers, none of the adults had to help him do it. He accomplished it, and you could tell that he was like, “I am doing it, and this is awesome!” you know, kinda thing. So, and I feel like very often their solo time, kinda is their little show off, gonna do, you know, kinda thing like that. So that’s, um, and I feel like a class…like with this class, I feel like they need that maybe even more than a typical class, is that time where we, you know, no matter what they, no matter what they did across the floor, whether it was exactly what we were asking them to do, as long as it was some semblance of what we told them to do, we are telling them that that was the best thing that we’ve seen all day. You know, I feel like they especially need that time where they get that, “I am the center of attention, and everybody just clapped for me, and, you know, the dance teachers just told me that it was good” kinda thing. You know, cause, and I’m sure that is something that, you know, the classroom teachers, I’m sure, are giving them compliments and, you know, encouragement all day long. But I feel like us as “outside influences” quote-unquote, um, to be able to say to them, “That was so good. That was the best bear I’ve seen all day” or something like that, is really important for them.

Me: [to “Susan”] Do you have anything to add?

Susan: Um, no, like that’s the coolest part of everything. That was awesome. [referring to “Richard”]

Me: Mmhmm. I agree. I got really excited when I saw that as well. Yeah. Interesting. So I do, I think it’s interesting that you said a little earlier that, um, it’s a good thing that you don’t necessarily know which kids are pegged as typical and atypical, because I do, and I take notes based on that. So it’s really interesting to hear your perspective, um, because I’m sitting there and, like, on the inside I know these kids are the ones that are the “special needs kids” and these are the “typical” kids, and I hope that doesn’t cloud my judgment when I’m looking –

Leslie: As you’re writing.

Me: Yeah, as I’m, you know, seeing observations and recording things. And so it’s interesting, it’s interesting to hear your perspective about it because it’s a, it’s a little different than mine. So, sometimes –

Leslie: And I feel like, too, it’s gonna be different for you though, too, cause you, your job for this class is to sit and write and observe. While we observe and do evaluate, we are on our feet and all the time so I’m sure there is stuff that we are missing, both good and bad, that they are doing. You know what I mean? Where we are, where we are
looking for, you know, “Okay, alright I did a cross-lateral thing today. Who is doing the cross – okay, check, check, yep, yep, yep, oh – a little tricky, a little – oh, oh, oh, now they got it, okay, check, check, check, check, check, check.” You know, where, and then maybe earlier or later they had been doing something in the same, of the same realm or capacity within that same really awesome or completely not even doing it, but, but, you know, so I’m sure that you being able to not be the one teaching at the same time is giving, you know, you have much clearer – I’m sure, of who’s actually capable of doing what.

[laughing]

Susan: Right. Well, and you can focus like on the whole, or you can focus on, like, a, a kid at a time, whereas, like, we’re kind of like working on it as a whole, like what can you do or not? This is what we’re working on, everyone’s gonna try it, you know, kinda thing.

Me: Mmhmm, yeah. I mean, I kinda feel the same way, though, too. If I’m, like, busy writing about one kid, I, maybe I’m missing something that another kid is doing or isn’t doing that is significant in some way. So it’s hard. It’s hard to just sit and observe, and it’s hard to teach and observe at the same time too. I’ve been on both sides of it. So, yeah.

Susan: Are you allowed to videotape?

Me: Huh?

Susan: Are you allowed to videotape?

Me: Um, I did not put anything like that in my permission slip, um, so, and I didn’t know –

Leslie: I think it’s part of the “ballet company” one, so you might be allowed to as long as you don’t use, like, publish it and use it, when you, yeah.

Me: Yeah. Right. Yeah. Hmm, well, that, that’s definitely something to think about for future studies. I basically, um, decided not to do that. I think it would – it makes it easier for, um, IRB approval if I don’t have, if I’m just, like, taking notes and I can obscure names whereas if I have video documentation –

Leslie: Of us going, “‘Ryan,’ that was great!”

Me: Right, right. So –

Leslie: “‘Veronica,’ this way!” [laughing]

Me: Yeah. So for this, for this I just kind of purposely decided not to, not to do that, so… Um, okay, well that’s really all I have for you. Thank you so much, this was very helpful, and, um, super awesome. So, thanks a lot!
Interview #2: Classroom Teacher Post Interview – “Amy”

Note: the assent script was performed prior to interview, but I wanted to have recorded documentation of the agreement, so I asked again while the audio recording was on.

Me: Okay, so we should be all set to record. So, once again, do I have your permission to record this conversation?

Amy: Yes, yes you do.

Me: Okay, thank you very much. Um, so first of all, I just want to say thank you again for letting me, um, come in and observe and, you know, take notes about your classroom. I just have a few follow-up questions for you to kind of get a better understanding of what I witnessed, and see if there are things that you witnessed as well that might, um, give me some more information, um, for my thesis. So, um, first of all, I just wanted to ask about any general comments that you had regarding your experience with “the ballet company.”

Amy: We loved it.

Me: That’s always good to hear.

Amy: It was so exciting to see kiddos that were, um, on a wide range of, um, disability that we have in our class. We have a cross-categorical classroom. And some of them, you know, on, that were new to our class as well as had, um, were identified as, um, high-incid-, or, low-incidence. So that means that they had a high level of, um, areas where there were, um deficits. And they came in the class and went from having, you know, no knowledge of what was going on and within a class or two, joining in and following directions and, um, following through with the tasks that were asked. So that was really exciting to see evolve at such a rapid pace with the, the dance and the music.

Me: Yeah, excellent. So, um, I have just a couple of questions about the structure of your school day in general. So are the students, um, is it inclusive the whole school day?

Amy: Yes.

Me: Okay, so they’re all together the whole time?

Amy: The group that we had in the afternoon were only there half a day.

Me: Right.

Amy: It’s like two half days and one, the full day is for the, um, the peer models.

Me: Right, okay. So, alright, that’s what I thought but I just wanted to clarify that. Um, so I was going to ask, too, um, and you don’t have to necessarily state, say names or anything, but, just in general, are there specific things that your students maybe struggle
with more? Um, just in general, if you see general trends about, you know, completing tasks or anything like that.

Amy: Well definitely, yeah, uh, the one-step directions I would say is probably one of the bigger pieces. Um, following one-step directions as well as, um, something that’s really important is the turn-taking. So, them, you know, listening to you, you know, responding to the questions you had regarding stories, you know, and going back and forth more than just once, or more than just talking out. You know, having the structure, you know, embedded in your lesson plans of, you know, going over something new, and then the next week reviewing what you went over in both dance and literary, you know, presentation as well.

Me: So you think the repetition was really valuable?

Amy: Oh, yeah.

Me: Okay. Okay, that’s great. Um, so then, basically some of the things that I’m interested in measuring are um, cognitive and socio-emotional and motor development. So since you spend more time with the kids during the day, I wanted to ask you what you thought. How, um, if there are any, maybe, relations between having the dance class and then if you see improvements in other areas in the classroom. So I wanted to start with, um, I guess, cognitive development in terms of – you know, have you noticed a difference between before they started taking the dance class and then after.

Amy: Well, and since cognitive is not a big, um, area that we focus on because at the age that I have the kiddos, there’s not the knowledge that, you know, the, the foundation, the base that they would have in another year or two. So it’s not actually an area of deficit that we even entertain at this point. But in terms of, you know, so I would say, under that I would put the, you know, more the social-emotional, one-step directions, so to follow – and the turn-taking – so to get to those places of higher-level thinking, you know, you need to have the foundation of what you guys are doing. So that directly does relate to the cognitive piece that we saw. I mean, that, I mean, the following one-step directions and turn-taking, um, that we saw implemented in the classroom.

Me: Okay, excellent. Um, and then, some of the things that I noticed in terms of cognitive development as well, are, you know, when they remember the story from last week. You know, they, we would say, “What animal do you remember?” And we had lots of the kids shouting out answers, which was great. Um, so then I guess the real question that I’m interested in is the contrast between the peer models and then your afternoon class. Um, do you see differences or improvements more so for one group versus the other?

Amy: Okay, I see. Right. Well, and it really depends because even with peer models, um, you know, everybody has something they’re working on. You know? So, you know, I did see some – I think it was really helpful obviously having the peer models in there and having the inclusion because I think that you know, depend…not contingent on either
group having the answer, if somebody had the answer, then that reinforced it for everybody. So it was good to have both of them in there to help support each other, is what we saw. Cause I have some kiddos in my class that don’t have, um, areas of deficit except for, like, motor, um, so they would be able to have the, the same level as the peer models in terms of cognition. So they were all influencing each other, I think, to get the whole group at another level.

Me: Yeah, absolutely. Um, that’s really good insight, actually, that I didn’t think about myself so that’s great. Um, so then I guess I have kind of the same question but regarding specifically the socio-emotional component, which you probably see more than we do since you’re – you spend more time with them than we did. So were there specific things that you noticed in terms of the socio-emotional development both for the group as a whole and for one group versus another?

Amy: Well I just see them bouncing back – and, and I’ll take it back to the attentiveness. Because it was a high-interest activity, you know, and you guys, even, even with repeating some of the concepts the next weeks or so, or week or so, um, it was just, they loved it. So there was, you know, there was the hook of the high interest to get them in. So some of the things that we asked them to do or that we’re trying to have model are helping each other. Whether it’s, you know, special needs kids with the typical or the typical with the spe- you know it’s, it, it can go both ways with that as well. So social-emotional wise, you know, I definitely saw them drawn in with the high interest with the music and the dance, and then doing things for each other and with each other. You know, let’s all be this, you know, let’s all, you know, we’re all working together on things. Um, and so, like taking somebody’s hand and helping them over to join the group. Um, I do see that a lot more in the classroom.

Me: Oh, interesting!

Amy: So, if we say, “Green table, it’s your turn to go play with Play-Doh.” You know, somebody’s sitting at the table, you know, and has not, you know, attended to get that instruction, one of the other kiddos will walk over, and we’re not saying a word. You know, they’re just taking their hand and having them, yeah.

Me: Interesting. Excellent. That’s great. Um, so then I guess my next question is how has the program impacted you as a teacher? Um, have you been able to use any of the concepts in the classroom, or have you felt more comfortable with that?

Amy: Yeah. I, I have. You know, and I like movement, you know, I can’t do a whole lot of the song and dance routines, but we have included things, you know, um, we’re on a butterfly unit, you know, so, you know, using the, um, the scarves, you know. I’ve used some other things, I’ve used a sheet in the past that they hold out, but scarves, you know, is so much more effective because we’re having the bilateral piece as well as, you know, being able again to have them pulled in because of the high interest. It’s just fun to have the scarves and those kind of things.
Me: Yeah. So do you find the use of props to be useful in general, um, to draw them in?

Amy: Well, I don’t – I mean the props are excellent, but you can do it without the props. You know, I think doing the things like, you know, we’re marching around the room while we’re singing and doing, uh – one of the days, I, I did a, we were doing colors. And so we were marching around the room and saying the letters of each of the colors. I would hold up the color, and they would march and, and identify each letter. So it was like they were getting the visual, they were getting the auditory, they were getting the movement, you know, with their bodies. So, um, I, so I, you know, you know, I held up the sign, but I didn’t have a prop, per se. But it was the movement and music. You know, the dance and music combination that really is helpful, I think. I mean, the props definitely I use as well, but sometimes you don’t have a prop for everything.

Me: Right, right, yeah. So then, um, I know that we were more attentive, I think, as the teaching artists, to motor development in terms of recording. Did you notice any developments, um, in terms of motor development, that expressed themselves in the classroom even?

Amy: Um, I think the, the thing for me is to see them be kind of like, free to express some things they might have always – um, we have a kiddo that that’s one of his big areas, is motor in the afternoon. And, um, we went to music class, which is, again, a music class, but he typically is like, from the time you give him a, uh, you know, direction, to the time he, he follows through, it’s like forever. And just to get him going is, is a bit of time. Well he volunteered to act out the part of a chicken in one of the plays, and just tore it up.

Me: Oh good!

Amy: To me, the fact that he was able to go from not a whole lot of follow through and definitely a lot of lag time to jumping in and doing that, he’s, to me, was significant of some other, you know, transitions.

Me: Yeah, absolutely. Um, so then, I, um, just kind of out of curiosity, what in your opinion was the most significant, um, thing, about “the ballet company’s” residency?

Amy: Holy moly. I like seeing the kids get excited about it. And follows – it, you know having a big class, or having the size class we have now, and having children follow through, and not have everything be bells and whistles – I mean yes we had the music, and yes we had, you know, the dance involved – but, they were – that was a half an hour of attention for them, straight. So that was amazing, um, to just see, but it also just like warmed my heart to have, like, my brand, my one brand new kiddo who large spaces, new things were terrifying for him, for him to literally take a class or two to, to jump on board was amazing. You know, and that has, um, generalized to us, that now when we go to some other classes he’s not fearful. You know, it’s like, you know, so that has been really fun. It just, I think the acceleration of some of the skills is what has been awesome.
for me. And to just see – it’s almost like once they do something like that, it’s like, now don’t tell me you can’t do this for a half hour, okay, cause you just did it. So it was really cool.

Me: Yeah. Great. Um, so then how long have you been teaching in the elementary, or –

Amy: Nearly 30 years. Either regular ed or special ed.

Me: Okay, and how long has it been specifically special ed?

Amy: Oh gosh, probably close to 20 years.

Me: Okay. Um, so then do you notice, um, about the – any differences between your previous experience with kids, um, with, with special needs and their development throughout the preschool year versus this group of kids that just had this program?

Amy: Oh, definitely. I mean, it does seem like, like I said, that there is the, you know, generalization of, you know, attentiveness. And, and, and also because now we are utilizing music more. Um, having another modality with which to kind of, in our bag of tricks, to help, you know, reinforce a concept that we’re teaching, so definitely. You know I see them getting way more excited and we, we didn’t do the, um, uh, they didn’t do any of the announcements last week and part of the announcements is to, um, go through a list of things and, and, uh, I was just kinda like, “I wonder if you know these without us telling you what they are.” You know, so things that we’ve been doing that, you know, we’ve been doing with the dance and doing with the music, and uh, I was like, “Oh, they got it, yay. Without any other reinforcements, they really did get it.” Um, so that’s really cool.

Me: Okay, awesome. Um, so then, I, this is pretty much – [interruption from teacher coming into the room to get materials] – Alright, so then I guess my final question for you would be just, um, any, do you have any final, like, observations or comments that you want me –

Amy: Yes, I put it on there. [indicating the post-teacher survey] And I know this was just kind of a – well, A) I can’t wait for next year so we can probably do it all year as well, because I think that would even be, you know, a stronger outcome to have that level of consistently for a year rather than half a, you know, half a year. Um, and B) you know, to somehow, and again, I know it was just, kind of you know, just starting and everything getting on board and changing but I would love to be, you know, have it set up so that we could attend the professional development.

Me: Oh, yeah.
Amy: Um, because it was, you guys had it set up but because we weren’t able to get subs, or we would have to take a personal day to get a sub, it was like, kind of, you know restrictive for us to be able to follow through with that piece.

Me: Yeah, I remember that.

Amy: That would be super helpful.

Me: Yeah, great. Okay, well that’s pretty much all I have – that give me a nice –

Amy: Oh, I remember the other thing –

Me: Oh – yeah?

Amy: I did put it on there as well, is some kind of – I’m really visual, you know the multi-modality is really helpful for me. So getting the auditory and getting the visual, I, you know, I saw us do it, I saw us, you know, I heard what was said, but to get, if there’s any way to get some ideas in a, maybe a booklet form. So you can say, you know, or even, here’s some good CD’s that would be good marching music, or, you know, I know it’s like reinventing the wheel, that probably have pieces parts of it already invented out there, but it’s super helpful.

Me: So, like resources for teachers?

Amy: Right, right.

Me: Okay.

Amy: Yeah. Cause like, I have an old old old record that’s teeny tiny, that’s of Sousa marches, and I was like, “Ah, I could use that!” So any other, yeah, things that could be written out, um, and/or this is the kind of music that would go with it well.

Me: Okay. Yeah. I will definitely pass that along to “The Director of Education.” I’m sure she would be – she would find that valuable as well. Alright, well thank you so much. This kind of, this definitely supplements some of the stuff that I was seeing as well, um, some of the things that I noticed too, so I appreciate you taking the time to speak with me.
Interview #3: Teaching Artist Post-Interview – “Leslie”

Note: the assent script was performed prior to interview, but I wanted to have recorded documentation of the agreement, so I asked again while the audio recording was on.

Me: Okay. So, thank you again for taking the time to discuss some of your final thoughts about the residency that we just completed. Um, so I guess my first question, um, would be, do you have my consent, or do you give your consent to record this interview?

Leslie: Absolutely.

Me: Perfect, thank you so much. I appreciate that. So the first I wanted to ask you was just your overall impression of the class. Did it change from the last time we talked about it, which was about five weeks into the class?

Leslie: Um, yeah definitely. I feel like we always, um, we are hoping to see growth in not just their movement and everything, and their willingness to do stuff, but with this class I really felt like they started to generate their own ideas, their own movements a little bit more, than – sometimes – and even the newbies that we couldn’t even have in the room for a couple of weeks had, were, you know, walking in and able to participate from beginning to end, where, um, not everybody was able to do that when we talked last. And we were, you know, a little worried about whether or not – how that was going to pan out because having that one, you know, having the one kid that is screaming or the one kid that refuses to do it is always, you know, kinda spirals sometimes. You know, there’s, there’s that contagiousness of, “Well if he’s not gonna do it, I’m gonna do it, and if that kid’s, why, you know, if that kid’s screaming, why, you know, is there something that I really should be kind of scared about?” or whatever. Um, but everything, everybody kinda came into the fold, and, it, you know, it, it was a fun, fun class to finish up with. It was a good last, end of the year kinda thing too, I feel like.

Me: Yeah, I agree. I agree. So do you think, um, then, that you did see growth in terms of motor development, socio-emotional development, and cognitive development?

Leslie: Absolutely. Definitely. And I think with this particular class, because – and going in, we knew that there were, there were kids with issues and then kids that quote-unquote did not have issues but, you know, sometimes there’s issues there that we don’t know about too. Um, but, so I think we had, we had adjusted our expectations somewhat. And, um, and like you know with me working at [a school for children with special needs], which, the new class that I have now is one of the most difficult that I’ve ever worked with, you know, so kinda like well, if I’m going, “Okay, well, compared to that, we were leaps and bounds over here” kinda thing. But yeah, definitely, um, not just in what they could do but, you know, getting the routine of the class and, um, understanding what was going on, being able to wait their turns to go across the floor, which is always an interesting, you know – and um, you know, and even this time of the school year, I feel like when we go in in the fall, we know that this is day one for a lot of ‘em, a lot of ‘em have never, you know, some, you know, especially if we were at a three-year-old class.
that they’ve, they’ve never had to stand and wait in line and wait their turn and stuff like that. But, you know, being a little bit later in the school year, it’s still interesting that when we say we’re gonna go one at a time that four of them go ahead and go, but then, you know, by the end of the ten weeks, they were all waiting and, um, even waiting then for us to give them the go ahead, as opposed to, you know, you can – they start to learn, “Okay, I’m gonna go next,” so they go without being told, “Oh yeah, so-and-so, you can go.” So, you know, that’s always, um, something I watch for too, that they actually, that they are expectantly looking at you going, “Okay, she’s gonna say my name and now I get to go” kinda thing.

Me: Yeah. That’s interesting that you say that because that’s one of the things that the classroom teacher mentioned as well.

Leslie: Oh really?

Me: Yeah. Saying that the turn-taking was really really important, and she thinks that we – the teaching artists helped a lot with that. And having the exposure to the dance program helped with that. So that’s interesting that you noticed that too. That’s good. So, in terms – I know you were kind of talking about comparing that to the other residency that you’re doing that has a lot of special needs kids, um, how does this compare to that in terms of that versus a quote-unquote “all typical” class? Do you see differences between the three groups?

Leslie: Yeah. Cause, um, well, cause at [the school for children with special needs], there are only, there’re only eight kids in the class, and they are all, um, they all have some pretty interesting issues. And um, so, and there are times that there’s been enough of them absent that we literally had a one-to-one ratio between teaching – because we had teaching artists, we had an intern with us, and then they have two classroom aids that come down. So it was like, “Okay, so we have six adults and six kids,” and, you know, so, um, and with, and with them it is, we find you have to do, you know, like with the follow the leader for example, we march for a long time. And then, and by, and by, you know, by the time that we actually get everybody marching, then the few that started marching with us are ready to do the change. But at least we feel, you know, it’s one of those things – and, um, and I feel like with this class, because we knew that it was a mixture, and there’re not, not as severe issues, that we pretty much ran it like a typical learning class. And I feel like, um, you know, like any kinda classroom, you kinda teach to the top and hope that those other ones rise, but I do feel like we, we introduced stuff more like it would be a typical learning class and then adjusted, adjusted expectations and how we, how we worked with individuals more so than adjusting the entire lesson plan, I guess, is, yeah, I, I don’t feel like we were like “Oh, well, we know that it’s a, you know, that there’s some special kids in here so we need to go a little bit slower.” I feel like we, um, I feel like we repeated things a little bit more, you know, maybe did ‘em – and especially because we had the days on and off and on and off, that, I feel like we tried to, um, you know, kinda tried to wrap something up and then introduce something new after we had a couple, you know, a couple weeks off as opposed to hoping that they
remembered it from two weeks. But then when we went, when we asked them, you know, about what we had done, I think all of us were amazed at how much that they all remembered. And we’re like, “Yeah, and we did this and we did that and we did this,” and we were like, “Yeah, yeah, yeah we did. I forgot we even did that but yeah, we did that.” [laughing]

Me: So speaking of the off and on days, so you know the ten-week residency took place over the course of, like, four months in this case, do you think that had an effect on anything that you saw?

Leslie: Um, yes and no. I feel like they did remember, I – they remembered stuff that we did, but, I feel like with that particular class, too, we, um, like with the animals that we did with, um, with the book, we made – we brought – we did lots of props stuff. And I feel like props stuff they remember sometimes more, they remember holding it or getting under it or whatever you do with the prop more than maybe the movement that was associated with it. So, you know, um, but they remem– the did remember a lot of the animals specifically. And, um, and I feel like, you know, one kid maybe remembered the animal, and then another one remembered the movement that we did with it. Not necessarily we had one kid say, “Oh, we, we, we trotted like the fox.” You know, someone said fox, and then someone else started doing the run, kinda thing. So it’s one of those – I feel like they, they filled in the gaps for each other, so to speak. And, and I’m, I’m assuming that that’s what happens in the classroom, you know, is that the um, they kinda work together and get things accomplished. Um, but yeah, I do feel like, um, – and even for us, trying, you know, to be like, “Okay, now, yeah, we did this, and now we’re gonna do this, but we haven’t seen ‘em for two weeks, so we might want to make sure that we reiterate this, that, or the other thing.” Which maybe we wouldn’t have needed to do if, you know, knowing that it was gonna go straight through for then weeks.

Me: Right.

Leslie: So I think, I think we tried to build that into our lesson planning, like I said, you know, to wrap up the book before we had two weeks off, and then, you know, kinda start something new instead of being like, “Oh yeah, so it was two weeks ago, and we still only have two pages left in this book” kinda thing.

Me: Yeah, exactly, exactly. So that, that is something that I thought might be kind of interesting, cause we see the 25 week programs and we see bigger growth with them. So if this ten-week program is lasting 20 weeks, actually, you know, I wonder if that, I wonder how that compares –

Leslie: The correlation.

Me: Yeah. Um, in terms of – since it’s a longer exposure to us in terms of the, uh, length of time that we are in the classroom even though it’s still only ten classes. So, I dunno. That was just something that occurred to me.
Leslie: Hmm. Yeah.

Me: And you mentioned something about working together. That’s, once again, another thing that the classroom teacher said, and she said that after having the residency, they would be more likely to go and help each other without having a teacher prompt them to do that. So –

Leslie: Oh, interesting.

Me: Yeah. So we would see some kids take other kids’ hands when they, when it was time to go in the circle, or whatever, and, so I was wondering if you noticed that change from kind of the beginning to the end, having some kids help other kids without being asked to help them.

Leslie: Yeah. I, I feel like at the beginning there was – I’m not even gonna remember who it was – but there, at one point there was somebody that the classroom teacher told us, “Oh, they can’t – they can’t be next to each other because so-and-so was overly helpful for somebody else.” And I’m not, I’m not remembering, I’m not remembering the students involved, but I’m remembering that.

Me: Yeah, I remember that too.

Leslie: But, um, but yeah, like when we did um, scarves and stuff like that, I, you know, instead of, I think, we did it a couple times, and I think the first time we did it, maybe if they saw a scarf on the floor, they were picking it up themselves. But then I think the more times we did it, they were finding the person that had lost it, or something like that. Um, but yeah, and I feel like, even if it wasn’t – and I don’t know that I actually saw, like, people taking hands or anything like that, but I feel like they watched each other a little bit more. Like on solos, where, at, you know, at one point, everybody did what I did, or whatever, or whatever “Susan” demonstrated, you know. But then you would have that one person that decided to do something else, and then the next three or four or five would do that. So you saw them watching each other a little bit more, and taking in, “Oh, well they did that, so maybe I’ll try that” kinda thing. Which is, you know, it’s much easier – I, you know, I always feel like it’s easier, you know, “If that person’s the same size as me and they can do it, then…” You know as opposed to watching us teachers, you know, “They’re – well they can do it cause they’re big” kinda thing. “But if, if my friend here, who’s the same size as me that I’ve been hanging out with all year can do it, then I can try it too.”

Me: Mmhmm. Yeah, absolutely. Um, I had a question and I just forgot what it was…so, I will move on and ask you, just what are some of the biggest things that you noticed? How did your expectations change, I guess, throughout the course?
Leslie: Well, I guess I feel like, cause being at [the school for students with special needs], and I’ve been at [the school for students with special needs], and, with that, we know that there are some peer models but not, it’s not nearly – I know, like, this class was almost half and half, from what I understand. But, um, from, at [the school for students with special needs], it doesn’t – there’s no, we have no idea, and I don’t think it’s nearly that cut and dried. I think it’s a few peer models in there. And, um, so I feel like being there, I kinda, you know, and there, I’ve had the gamut of, you know, like this class, there’s six people in here, and there’s six adults in here, and every single one of us adults is working with a kid at some point in time, to if it wasn’t in that building, you wouldn’t, you would think it was a more typical. So I guess, um, I feel like I go in going, “Okay, I know that this is labeled a special needs class, but we’re gonna get to know ‘em before –” you know, and obviously, okay, so that means, yes, one: plan on it taking longer for them to be able to master something, whether that be just even the same hello and walking in and not running across the gym because they’re used to going in and playing in the gym. Um, or whether it is trying to stretch arms and walk on your toes at the same time. And, so getting to know the class, I feel like, yeah, I feel like going in, you set your – the bar low, and then, and actually I think we pushed it up as the ten weeks went on. As we got to know ‘em, we’re like, “Well yeah, let’s do this, let’s try it, I think they can.” And I think for the most part, they all rose to the occasion.

Me: Yeah, I agree with you. So then, I remembered my question. So then after all of the experiences that you’ve had teaching special needs classes or integrated classes, how would you adjust delivering this program for a – an integrated or special needs class?

Leslie: Like, to pitch it to somebody or tell them about it, or just, what, how I do it?

Me: How would you teach it?

Leslie: How would I teach it?

Me: How would you change your teaching methods?

Leslie: I, I plan it to take longer for them to do something. Um, I look at the, um, the, the room that we’re in a little bit more closely, as far as distractions and things like that. You know, like the gym, you know, we had all plain walls, which was fine. Um, but, and then also wanting to know if they come to that particular classroom for something else. You know, like if we’re going, if, if we’re going to the big muscle room or whatever, are they used to hitting that door and being able to run and scream? And do we have to let them know, “Oh, but on dance class day, when “Dancing for Development’s” here, you know, this is what happens.” Um, and for the most part, a, a, overall, in general, I would say, you know, a, a special needs class, they are very regimented. So, um, changing up the order or something like that – probably not gonna work. As, as well, you know, with, with other classes, you can be like, “Oh, well we’re gonna do this first instead, and then do this.” Um, a more typical learning class, that’s not gonna phase them as much as, um, classes with special needs cause they are used to, you know, you do A, B, C, D – um, and
even we had, we had one class at [the school for children with special needs] this year that we did, we had the little visual schedule thing, and, um, and we had five, five pictures and they got to spell out “dance.” So we came in and we said, “Hello,” and someone got to put the letter D up. And, you know, so that was like, we are not changing the order of things, period. [laughing] You know? And, um, and had we, I, we probably, we probably would have lost most of them, because, they, you know, and then, and there was one day that one of the kids, one kid did grab the wrong letter, and oh my gosh, they were like, “That’s not the A!” You know? [laughing] Like, “It’s okay, we can handle this.” But, um, so yeah, so I just, you know, make, watch for distractions, plan, you know, at least the first couple weeks before you really get to know what you think they can do is, just plan on things taking a longer period of time for them to, um, understand and manage. And then, and kinda rolling with them, even a little – I mean, I do try to have, let them have some sort of input, you know, you know, what kind of a flower, you know, it’s spring so we do, you know, like, what kind of a flower are we, kinda be? What kinds of bugs can we think of? You know, um, you know, if, if we were, it’s – does it move faster or slower than what we were just talking about? I try to do something where the class has some sort of input, um, and, you know, so we could have started talking about bugs and someone decides that they wanna, that they’re, they’re gonna be the racecar. And, so, um, in a, in a special needs class I might be a little bit – I’m more willing to kinda go with them than, “Oh, well, you know what, a racecar’s not really a bug. Think of a fast bug.” You know, maybe, you know, and then, or, you know, or now we’re a bug driving the racecar. I might, you know, might try to, you know, shape that a little bit more with a typical class. Where, you know, depending on the kid in a special needs class, they’re not gonna buy that. You know, they, they wanna be the racecar right now. And, and also, the classroom teacher comes in with that too. Um, I had, you know, we did have one kid that, um, she, My Little Pony’s were like her life. But if, but if she got to talking about ‘em, class was done because she just stood there and talked about it and we could dance around her. So basically she wasn’t supposed to talk about My Little Pony’s at school, period. So we had to be very careful, you know, like we’re gonna gallop, not to say, “We’re gonna gallop like a horse,” or something like that because she’d be like, “My favorite blah blah…” You know, um, or if, if we talked about going fast, she would, you know, like, whichever one, Rainbow Dash or something like that, you know, goes really fast. So we had to be very careful that as we phrased stuff, you know, so, knowing from the classroom teacher, um, like, certain words – you know, we had one, um, I forget what it was, like they, we were flapping our wings or something, and they tried, they, they had an issue with kids flapping their arms and hitting each other. So we had to, we couldn’t use “flap,” we had to use “flutter.” You know, kinda things like that. So, so that wasn’t an issue here at [the public school], where, you know where there was, where there was something, you know, something very specific that we were like, “Oh, we need to use this word.” But, the classroom teachers are very, you know, if something very specific like that, where, you know, we try not, we try not to use this word and we try to make sure that we don’t bring up this type of subject to make sure that those, you know, like with a fixation kinda thing or whatever, don’t get triggered, so to speak? I guess is the, or, you know, to be able to, you know, to be able to keep them focused on the topic that we want them to be, as opposed to – but again, if, you know, if
it’s, if we can rationalize the relationship in any way, shape, or form to what we are trying to accomplish – if we can get the same movement principles accomplished by what their suggestion was, then let’s go that way, and, you know, because, you know, you know, I, they, um, a special needs kid very, they react differently. And, you know, with a typical kid, you know, sometimes they pout or whatever, but then they realize that we’re still doing this and can, you know, but with a special needs kid, sometimes, that, you know, all bets are off and, you know, they’re in the corner screaming because you decided to do the bug instead of the car or something like that. So, little, um, react, um, a little bit more reactive than most typical learners, I would say.

Me: Yeah, absolutely.

Leslie: That was a long-winded answer for all of that, sorry. [laughing]

Me: No, that’s great. It’s all good, good stuff to know. So then I guess my final question for you would be what is the biggest thing that stood out to you, or what was your biggest takeaway after working with this class?

Leslie: Just, their, their willingness to try anything. And, um, and again, we had, going in we know that, you know, some of them have issues, some of them don’t, but the kids that have issues, they know that they have issues, you know, I feel like it’s not, it’s not news to them, and they get that they’re not gonna be able to do everything, and we get that they’re not gonna be able to do everything, but they, this class, everybody jumped in with two feet. You know, like, they’re, you know, we had, you know, or, the one little girl who, like, you know, wouldn’t do her solo…but, and I, but that one I felt, that was a more, I, I honestly felt like that was an attention thing. That she wanted, it wasn’t that she didn’t wanna go alone, it was that she wanted the extra whatever of having a teacher go with her. That, that was my feeling on her – [laughing] – that it wasn’t a [gasp] stage fright thing. It was, I’m, I’m gonna, I’m gonna make somebody do something with me kinda thing. That was my feeling and I, I could be reading her wrong. But, um, but yeah, they all showed no fear, more or less. You know? They came in – for the most part, they came in ready to do it, wanting to do it, willing to do it, and ended up being a great, great class. You know? And I think sometimes, um, when you get the “Are you willing to do this ‘special needs’ class?” and you’re kinda like, you know, you kinda do the, “…Okay, yeah, let’s give it a try…” Um, but I will say, I’ve done a, a, a lot of ’em now, and I’m like, “Yeah, bring ‘em on. Let’s do it.” You know? They, they’re, you know, they have a little special place in my heart. And, um, and I, you know, I feel they – and I think they might even try harder sometimes, because they, they know, you know, they don’t know what, you know, at that age, I doubt that you, that they would be able to say, “Well, I’ve been diagnosed with a blah blah blah blah blah, something, something” You know, or whatever. But I feel like, you know, they’re getting to realize that maybe there’s, you know, there’s a little bit something, “I, I’m learning different than that, you know, that person,” or, that kind of thing, so, you know, it, and, I think you could either go, “Okay, I’m gonna give up because of that,” or “I’m gonna try harder.” And I feel like this class
all, they were, just tried harder. And rose to the occasion. It was a good class. I had a
good time with it.

Me: Good. Yeah, alright, well thank you so much. That is all of the questions that I have
for you.

Leslie: My pleasure.

Me: So I really appreciate your help, once again, and best of luck with future residencies.

Leslie: Thank you.
Appendix C: Survey Materials

Student Surveys – Filled out by Classroom Teacher

School Name: ___________________________  Student Name: _______________
Date: ________________________________

How often does the student named above demonstrate the following behaviors in your opinion?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Manages feelings appropriately.</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>2.</td>
<td>Takes responsibility for own well-being (i.e., uses self-help skills, participates in chores).</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>3.</td>
<td>Follows classroom rules.</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>4.</td>
<td>Plays well with other children.</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>5.</td>
<td>Recognizes the feelings of others.</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>6.</td>
<td>Responds appropriately to the feelings of others.</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>7.</td>
<td>Shares objects with others.</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>8.</td>
<td>Uses skills to resolve conflicts</td>
<td>○1</td>
<td>○2</td>
<td>○3</td>
<td>○</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
<td>Scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------------------------------------------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Approaches problems with flexibility.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10.</td>
<td>Uses dance/movement to present ideas.</td>
<td>4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11.</td>
<td>Demonstrates one-to-one correspondence when counting objects up to 10.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12.</td>
<td>Recognizes, duplicates, and extends simple patterns using attributes such as</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>color, shape, or size.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Demonstrates knowledge of patterns.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>14.</td>
<td>Orders objects by measurable attributes (e.g., biggest to smallest, etc.)</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Makes careful observations.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Poses questions about the physical and natural environment.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Describes, compares, sorts, classifies, and orders.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Identifies patterns and relationships.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Makes predictions.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Makes inferences, generalizations, and explanations based on evidence.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Uses classification skills</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Uses symbols and images to represent something not present.</td>
<td>4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
First, we would like to know some things about you and your son/daughter. All information will be kept confidential.

1. What school does your child attend? ____________________________________________

2. How old is your son or daughter?
   - 3
   - 4
   - 5

3. What is your child’s gender?
   - Boy
   - Girl

4. How much experience do you have with dance/movement?
   - I have taken a dance class (for example, tap or jazz) and regularly
   - I have taken dance classes, but do not dance much
   - My experience with dance centers around family/friend get-togethers or religious ceremonies
   - I rarely dance for any reason

5. How helpful is dance/movement to the classroom experience?

<table>
<thead>
<tr>
<th>Not at all helpful</th>
<th>Not particularly helpful</th>
<th>Somewhat helpful</th>
<th>Helpful</th>
<th>Extremely helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
</tbody>
</table>

6. How much do you agree with the statements regarding your experience with dance and movement?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Disagree nor Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dance/movement is an important part of life.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Dance/movement can help my child with his/her learning in school.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Dance/movement can help improve my son/daughter’s behavior.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Dance/movement should not be part of my child’s learning in school.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>I like that dance/movement is part of my child’s classroom experience.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>My child likes to dance/move.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Dance/movement can be a way for my child to interact positively with other kids.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Dance/movement will help my child participate more in class.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neither Disagree nor Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>-----------------------------------------------------------------</td>
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</tr>
<tr>
<td>My child can use dance/movement as a way to express him/herself better.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Dance/movement can help my child improve his/her math and science skills.</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
</tbody>
</table>
Teacher Surveys

1. What is your position within the school?
   ___ Teacher  ___ Center Director  ___ Family Advocate  ___ Other

2. How old are most of the students in your classroom?
   ___ 3    ___ 4    ___ 5

3. How many students are in your classroom?
   _____

4. How many of your students are in your class Total _____ Boys _____ Girls _____

5. How many years have you been teaching? _____

6. Prior to today, how much experience do you have with dance/movement?
   ○ I have formal training in dance/movement and use it regularly in my class
   ○ I have formal training in dance/movement but do not use it much in my class
   ○ I have had little formal training with dance/movement
   ○ My experience with dance centers around family/friend get-togethers or religious ceremonies
   ○ I do not have any formal training with dance/movement but use it regularly in my class
   ○ I do not have any formal training with dance/movement and do not use it in my class

7. How valuable is dance/movement to the classroom experience?

<table>
<thead>
<tr>
<th>Not at all valuable</th>
<th>Not particularly valuable</th>
<th>Somewhat valuable</th>
<th>Valuable</th>
<th>Extremely valuable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

8. How willing are you to use dance/movement in your classroom?

<table>
<thead>
<tr>
<th>Very Unwilling</th>
<th>Unwilling</th>
<th>Neither willing nor unwilling</th>
<th>Willing</th>
<th>Very Willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

9. How likely are you to use dance/movement in your classroom in this coming year?

<table>
<thead>
<tr>
<th>Extremely Unlikely</th>
<th>Unlikely</th>
<th>Neither likely nor unlikely</th>
<th>Likely</th>
<th>Extremely likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

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10. How much do you agree with the statements regarding your experience with the *The Wiggle Jig*?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither disagree nor agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel competent in using dance/movement in my classroom</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Dance/movement can help my students learn science concepts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Dance/movement can help my students with their learning.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I have never used dance/movement in my classroom without a dance teacher present</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I have the skills to incorporate dance/movement into my regular teaching strategies.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Dance/movement can help my students with their executive functioning /cognitive skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Dance/movement can help my students with their social skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I will not use dance/movement on my own in my class because I don’t have the time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My students like when we dance/move.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Dance/movement can help my students with their readiness for school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

11. What resources would you need to be able to use dance/movement in your class?

.................................................................................................................................
.................................................................................................................................

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