Ballet Met

EDUCATION

THE WIGGLE JIG EVALUATION REPORT

EVALUATING THE IMPACT OF BALLETMET'S COMPREHENSIVE PRE-K PROGRAM (2023-2024)

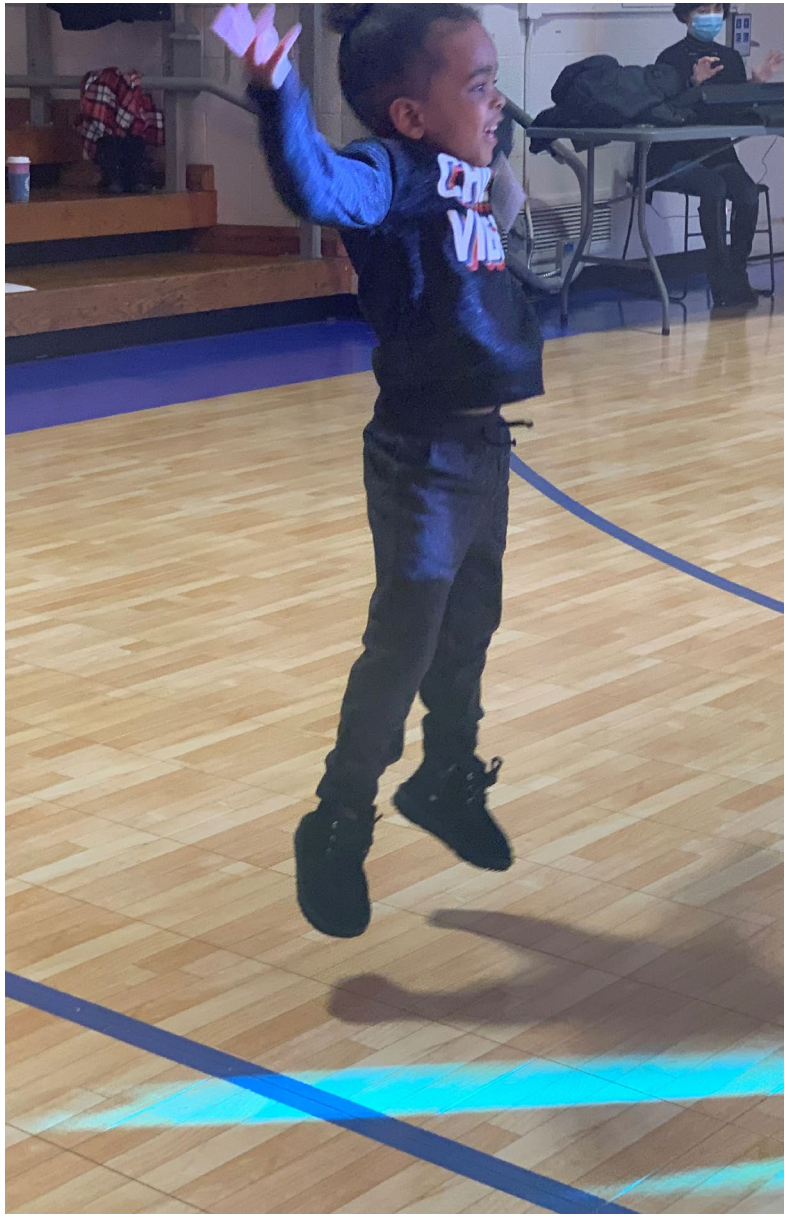
June 2024

EXECUTIVE SUMMARY

BalletMet's *The Wiggle Jig* program is a 10-week creative movement program that aims to improve children's physical, cognitive, and social emotional skills.

Data from the program's beginning in 2009 until now consistently shows that for children participating in *the Wiggle Jig* program:

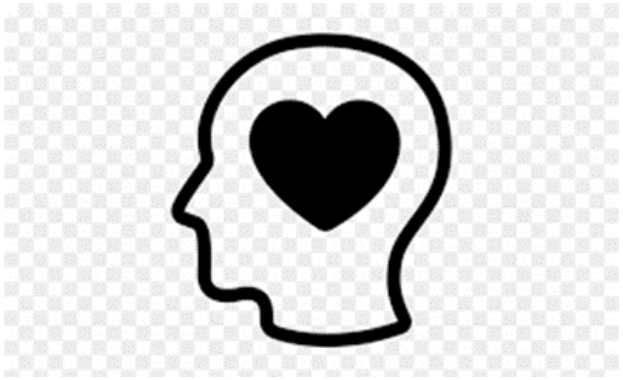
- Preschoolers significantly improved their motor skills
- Preschoolers significantly improved their executive function skills
- Preschoolers significantly improved their social-emotional skills



KEY RESEARCH FINDINGS

- **CHILDREN SHOW MAJOR IMPROVEMENTS IN MOTOR SKILLS AFTER RPARTICIPATING IN *THE WIGGLE JIG*.** Students showed great improvement, with 98% improving in at least one of the ten measured motor concepts, and 25% showing improvement across all ten categories. Additionally, every concept showed improvement by at least 69% of children. Together, this suggests that *The Wiggle Jig* is a comprehensive movement curriculum, and that improvement in one facet supports improvement in others.
- **CHILDREN INCREASE THEIR ABILITY TO SUCCESSFULLY ENGAGE EXECUTIVE FUNCTIONING SKILLS AFTER PARTICIPATING IN *THE WIGGLE JIG*.** The dance instruction emphasizes the ability to plan, remember, and execute multiple, connected motions, as well as shift and inhibit behavioral responses by experimenting with movement and taking turns. Teachers took note of this, reporting significant improvement over time in the ability of preschoolers who participated in *The Wiggle Jig* to employ executive function skills.

KEY RESEARCH FINDINGS



- **CHILDREN INCREASE THEIR SOCIAL-EMOTIONAL SKILLS AFTER PARTICIPATING IN *THE WIGGLE JIG*.** The dance instruction emphasizes the ability to understand and communicate with others, and preschoolers taking part in *The Wiggle Jig* showed significant improvement over time in their ability to express emotions and engage in prosocial behaviors.
- **OVERALL, TEACHERS FIND VALUE IN INCORPORATING DANCE/MOVEMENT IN THEIR CLASSROOM AND WANT TO DO THIS AGAIN.** Classroom teachers commented equally on the emotional impact of the program: helping the children express themselves and gain confidence, and the physical and cognitive impact of the program: improving children's motor skills, coordination, self-control, focus/attention, listening skills, and creativity.

OVERVIEW OF THE 2023-2024 IMPACT EVALUATION

OVERVIEW OF THE WIGGLE JIG PARTICIPATION IN 2023-2024

ABOUT THE ANALYTIC APPROACH

KEY PROGRAM IMPACT QUESTIONS

WHAT IS *THE WIGGLE JIG?*

BalletMet's *The Wiggle Jig* is a comprehensive dance program for early childhood students ages three to five. Created in 2009 with help from PNC's Grow Up Great® program, *The Wiggle Jig* promotes children's motor/movement development, social/emotional skills, and executive functioning/cognitive skills, all in the context of supporting healthy childhood development.

Aided by generous financial support from various funding sources, BalletMet works with a variety of organizations to bring *The Wiggle Jig* to the community. The comprehensive programming brings two dance educators and an accompanist into each classroom for ten weeks, with one 30-minute class per week. BalletMet also provides professional development for teachers, the literacy companion book *Leap and Twirl* written specifically for the program, and an evaluation protocol. Prior to COVID, students were also offered the opportunity to tour BalletMet's dance center; BalletMet hopes to bring tours back in the future but was unable to do so for the 2023-2024 academic year.

THE WIGGLE JIG PARTICIPATION: 2023-2024

- Over the 2023-2024 school year:
  - *The Wiggle Jig* was delivered in 10-week blocks over four educational sessions: Summer 2023, Fall 2024, Winter 2024, and Spring 2024.
  - During that time, a total of **12 preschool classes** at **8 sites across central Ohio** received *The Wiggle Jig* program. These sites included early childhood programs at YMCAs, Columbus City Schools, and The Childhood League Center.
  - In total, **188 preschool children** participated in a 10-week *The Wiggle Jig* session during the 2023-2024 time period. This number is lower than in previous years partly because of limited funding, and partly because we have adapted this program to a shorter, 4-week program that we piloted in 13 schools this year. Because the 4-week program was so much shorter, we did not use the same evaluation protocols as the 10-week program. BalletMet hopes to increase participation and expand programming for the 10-week program in the coming years.

ANALYTIC APPROACH: RESEARCH METHODS

To measure *The Wiggle Jig's* impact on students, we use a mixed-methods approach blending behavioral observations and subjective ratings.

- **BalletMet's Movement Rubric:** Based on research related to the neuromotor developmental pathways, this tool measures children's ability to control their breathing and body movements as they express themselves and communicate through dance.
  - Across the four sessions, BalletMet instructors completed 175 rubrics at the session start (i.e., the "pre" measurement) and 168 rubrics at session end (i.e., the "post" measurement).
  - Overall, 168 students had both pre and post movement rubrics completed.
- **Student Survey (completed by the classroom teacher):** This tool measured the extent to which children were able to express and respond to their own and others' emotions (socio-emotional development), follow multi-step directions, shift between tasks, and plan ahead, and demonstrate restraint/self-regulation (executive function).
  - Across the four sessions, classroom teachers completed 181 surveys at session start (i.e., the "pre" measurement) and 179 surveys at session end (i.e., the "post" measurement).
  - Overall, 178 students had both pre and post student survey data.

ANALYTIC APPROACH: RESEARCH METHODS

- Data analysis for this evaluation focuses on students for whom we have both pre and post data. Tracking the same child over the 10-week period allows a more accurate and sensitive measurement of program impact on student motor development, social-emotional skills, and executive functioning.
- Ideally, a perfect evaluation would compare motor skills, social-emotional skills, and executive function of children who receive *The Wiggle Jig* to children who did not (i.e., a control group). Unfortunately, that was not possible to do based on the available population as there was no opportunity for random assignment. Thus, we cannot say that *The Wiggle Jig* caused changes in developmental skills – only that the program may have contributed to such changes.

KEY PROGRAM IMPACT QUESTIONS

Did participating children increase their motor development skills?

Did participating children increase their executive function skills?

Did participating children increase their social-emotional skills?

Did classroom teachers find value in the program?

THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

DID PARTICIPATING CHILDREN INCREASE THEIR MOTOR DEVELOPMENT SKILLS?

THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

Description of BalletMet's "Movement Rubric"

BalletMet's *The Wiggle Jig* uses an adapted version of Dr. Martha Eddy's pre-K animal moves rubric to detect changes in children's motor skills. This instrument measures the extent to which each child successfully completes actions representing the concepts below. This year, the rubric was expanded to address both stationary and locomotor movements in four of the six categories, which resulted in a total of 10 measurable categories within motor development.

Categories

BREATH

•Action example: relaxed breathing, belly breathing // Jellyfish

CORE DISTAL (WHOLE BODY)

•Action example: open-close // Starfish

HEAD-TAIL (SPINAL)*

•Action example: flexion and extension of the spine // Snake

SYMMETRICAL UPPER-LOWER BODY HALVES*

•Action example: same action with both arms or both legs // Frog

RIGHT-LEFT BODY HALVES*

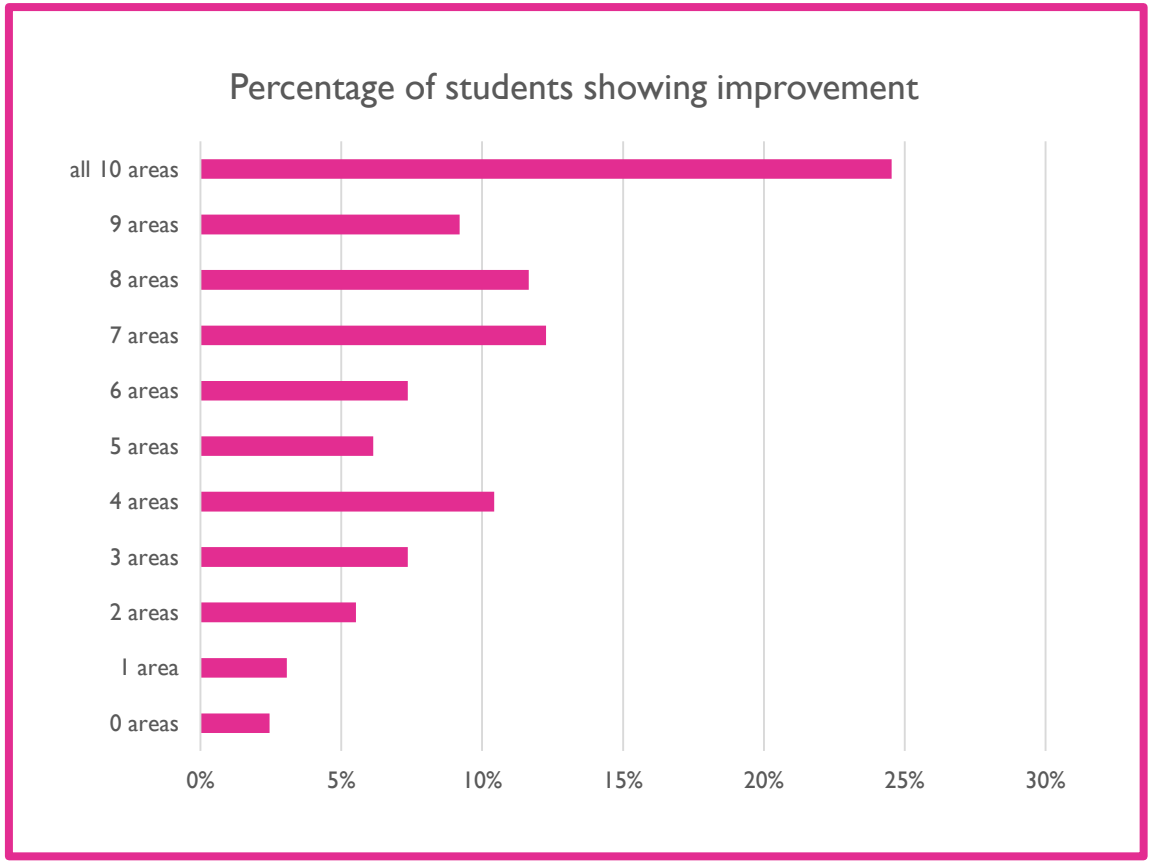
•Action example: same side arm and leg movement // Lizard

CROSS-LATERAL OPPOSITION/DIAGONAL*

•Action example: opposite arm and leg // Monkey

*Includes both stationary and locomotor components

THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

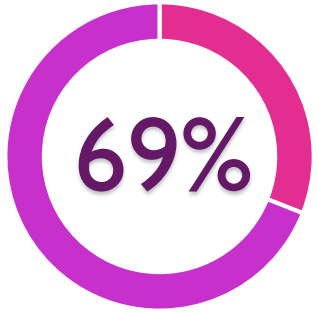


Major Improvements in Motor Control after Program Participation

- Students showed great improvement, with **98% improving in at least one** of the ten different developmental motor areas; 25% showed improvement in all ten areas. Additionally, every concept showed improvement by at least 69% of children.
- Overall, these findings suggest that this is a comprehensive movement curriculum, and that improvement in one area supports improvement in others.

THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

Percentage of preschoolers who improved (overall) on measures of Breath:

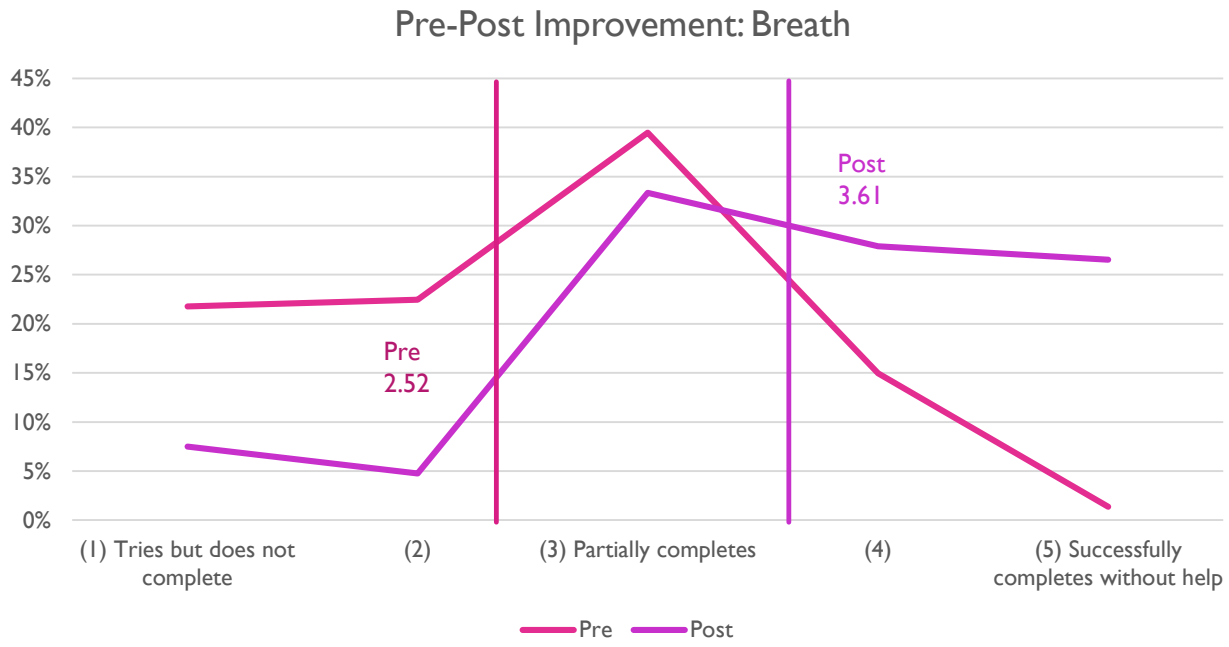


Breath

The "Breath" component focuses on the developmental motor skill of relaxed breathing and self-regulation of emotional state. (Movement example: jellyfish)

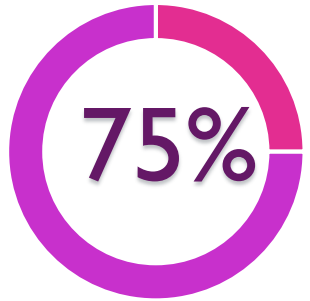
The graph to the right shows the distribution of average ratings for the overall Breath rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" – for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=147



THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

Percentage of preschoolers who improved (overall) on measures of Core-Distal (Whole Body):

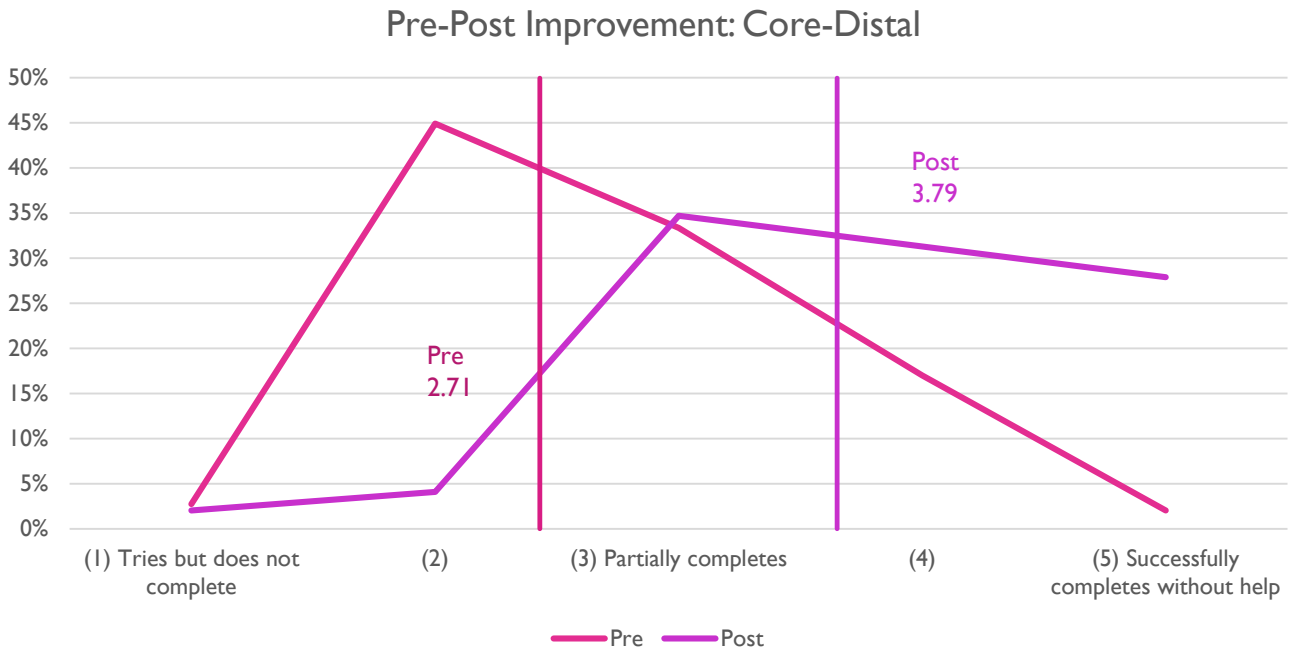


Core-Distal (Whole Body)

The "Core-Distal" concept focuses on the developmental motor skill of opening and closing actions using the whole body (movement example: starfish).

The graph to the right shows the distribution of average ratings for the overall Core-Distal rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=147



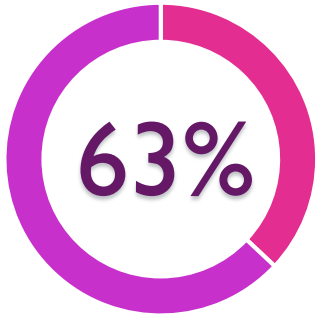
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

Head-Tail (Spinal)

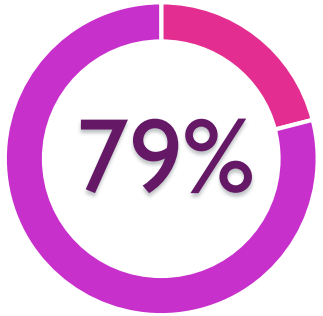
The "Head-Tail" concept focuses on the developmental motor skill of spinal flexion and extension (movement example: snake). This year, we broke the Head-Tail category into two sections: locomotor and stationary. Locomotor head-tail movement articulates the spine while traveling through space, while stationary movement remains in one spot.

$N_{locomotor}$=145 / $N_{stationary}$ =145

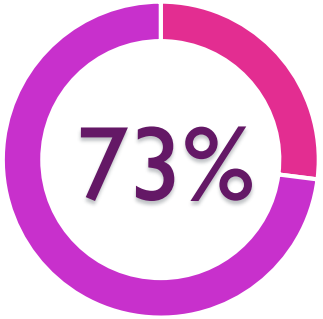
Percentage of preschoolers who improved (overall) on BOTH* measures of Head-Tail (Spinal):



Percentage of preschoolers who improved (overall) on locomotor measures of Head-Tail (Spinal):



Percentage of preschoolers who improved (overall) on stationary measures of Head-Tail (Spinal):



*This percentage reflects students who had participation recorded for *all four data points* – pre/post locomotor *and* pre-post stationary; n=140

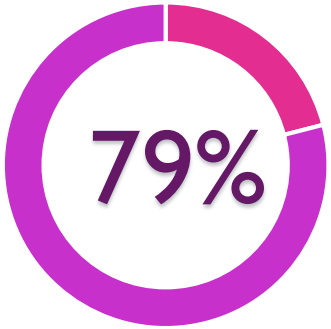
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

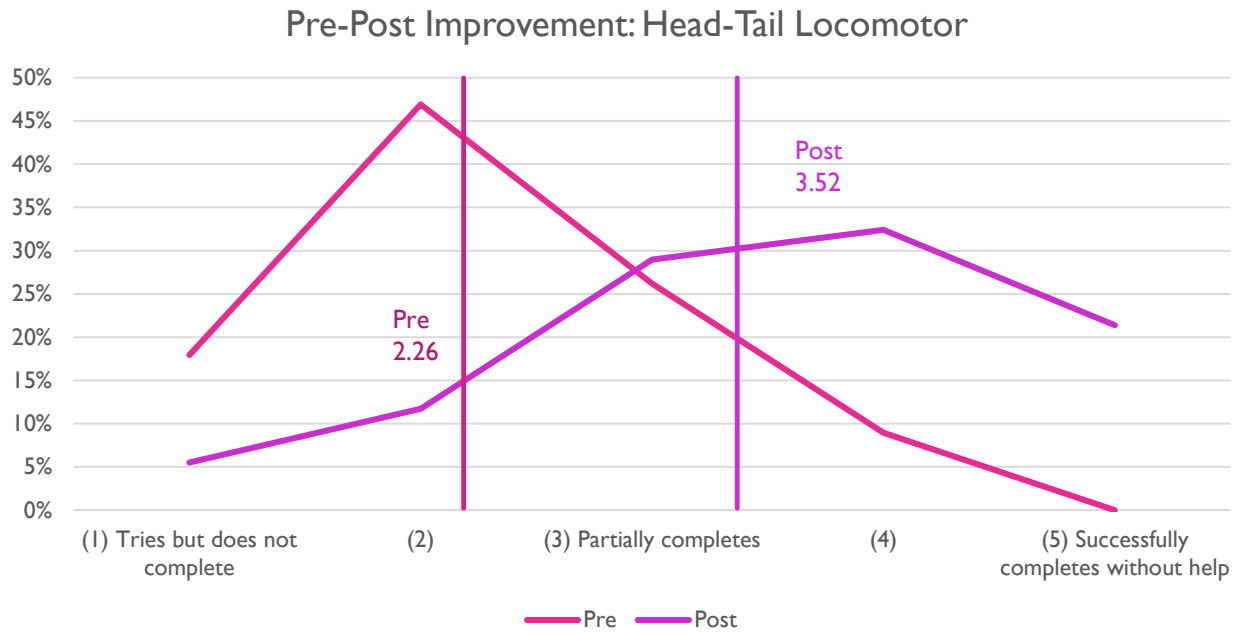
Head-Tail (Spinal) - Locomotor

The graph to the right shows the distribution of average ratings for the locomotor Head-Tail rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=145

Percentage of preschoolers who improved (overall) on locomotor measures of Head-Tail (Spinal):





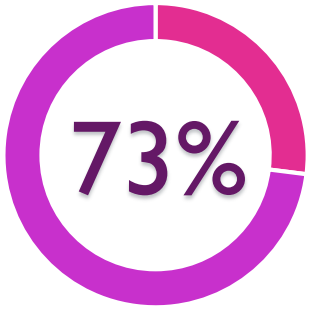
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

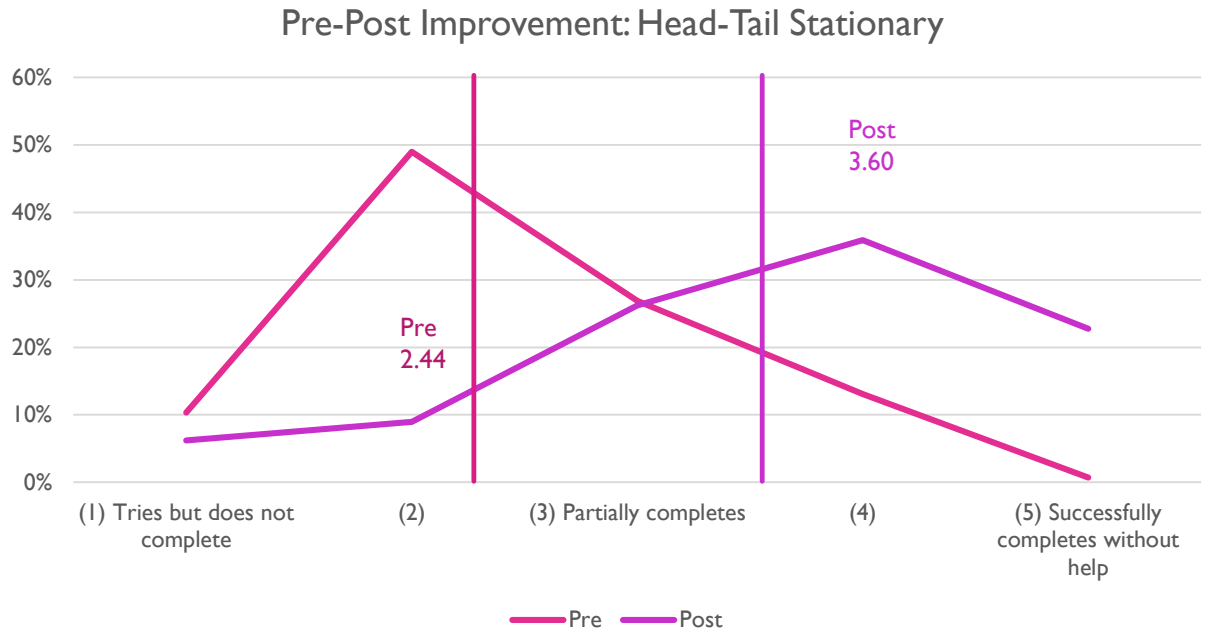
Head-Tail (Spinal) - Stationary

The graph to the right shows the distribution of average ratings for the stationary Head-Tail rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes."This change was statistically significant.

N=145

Percentage of preschoolers who improved (overall) on stationary measures of Head-Tail (Spinal):





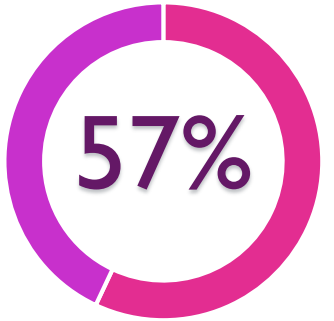
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

Symmetrical Upper-Lower Body Halves

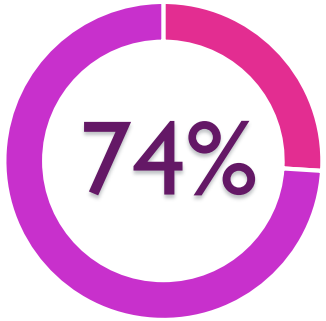
The "Upper-Lower" concept focuses on the developmental motor skill of completing the same action with both arms or both legs (movement example: frog). This year, we broke the Upper-Lower category into two sections: locomotor and stationary. Locomotor upper-lower movement isolates upper body and lower body traveling through space, like in successive jumps, while stationary movement remains in one spot.

$N_{locomotor}$=148 / $N_{stationary}$ =142

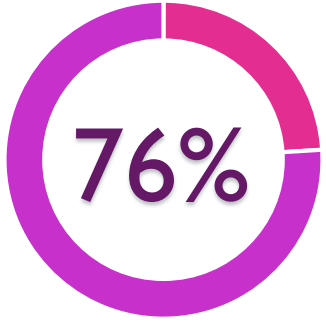
Percentage of preschoolers who improved (overall) on BOTH* measures of Upper-Lower Body Halves:



Percentage of preschoolers who improved (overall) on locomotor measures of Upper-Lower Body Halves:



Percentage of preschoolers who improved (overall) on stationary measures of Upper-Lower Body Halves:



*This percentage reflects students who had participation recorded for *all four data points* – pre/post locomotor *and* pre-post stationary; n=137

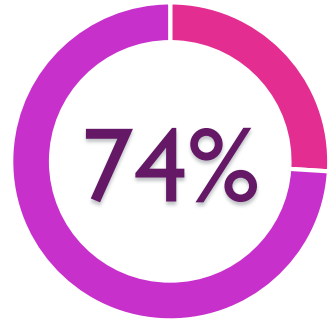
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

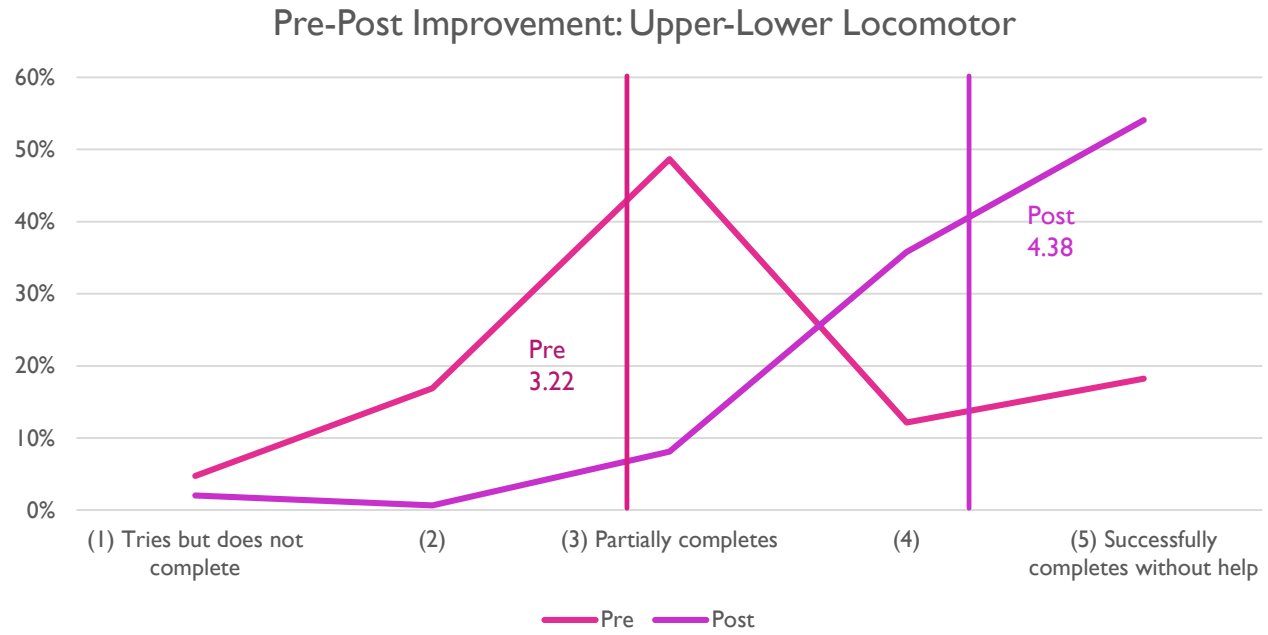
Symmetrical Upper-Lower Body Halves - Locomotor

The graph to the right shows the distribution of average ratings for the locomotor Upper-Lower rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=148

Percentage of preschoolers who improved (overall) on locomotor measures of Upper-Lower Body Halves:





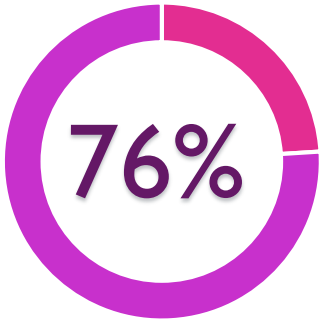
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

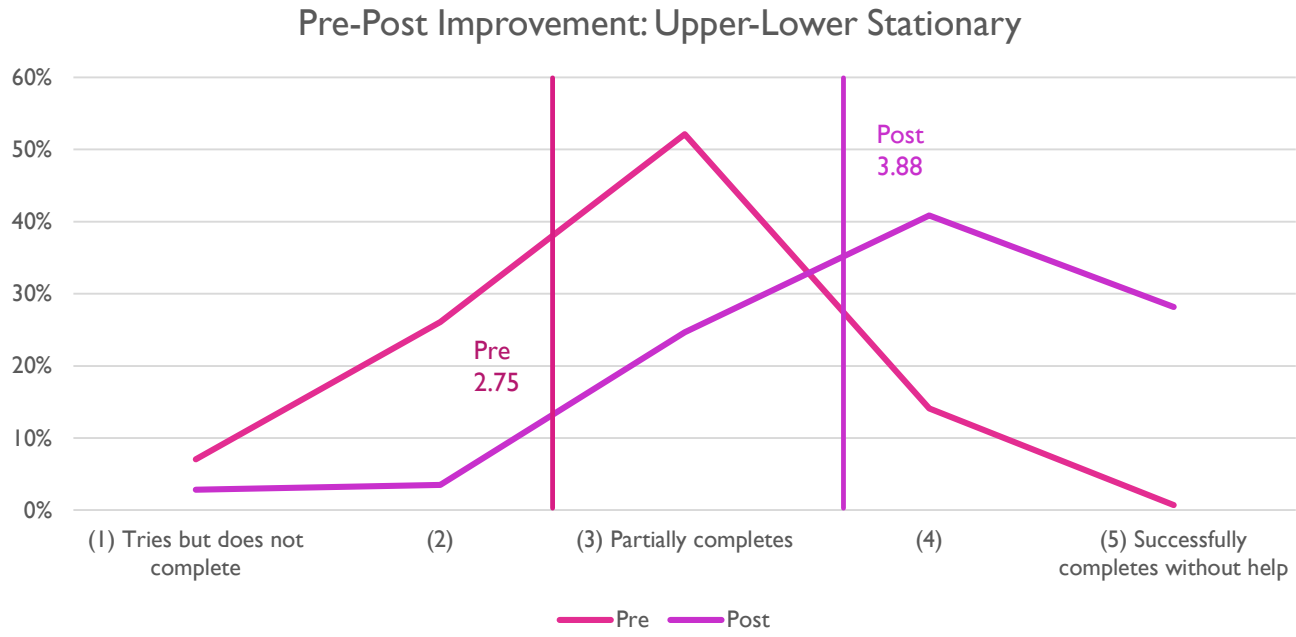
Symmetrical Upper-Lower Body Halves - Stationary

The graph to the right shows the distribution of average ratings for the stationary Upper-Lower rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes."This change was statistically significant.

N=142

Percentage of preschoolers who improved (overall) on stationary measures of Upper-Lower Body Halves:





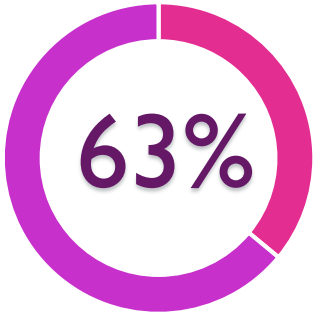
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

Right-Left Body Halves

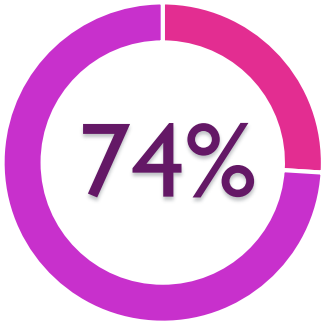
The "Right-Left" concept focuses on the developmental motor skill of using the same side arm and leg (movement example: lizard or bear). This year, we broke the Right-Left category into two sections: locomotor and stationary. Locomotor right-left movement isolates the right side body and left side body traveling through space, such as in bear walks (moving right arm and right leg together, then left arm and left leg together), while stationary movement remains in one spot.

$N_{locomotor}$=150 / $N_{stationary}$ =129

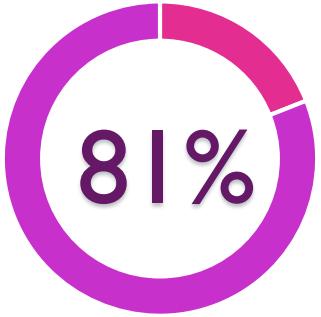
Percentage of preschoolers who improved (overall) on BOTH* measures of Right-Left Body Halves:



Percentage of preschoolers who improved (overall) on locomotor measures of Right-Left Body Halves:



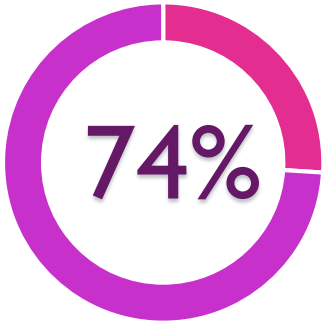
Percentage of preschoolers who improved (overall) on stationary measures of Right-Left Body Halves:



*This percentage reflects students who had participation recorded for *all four data points* – pre/post locomotor *and* pre-post stationary; n=126

THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

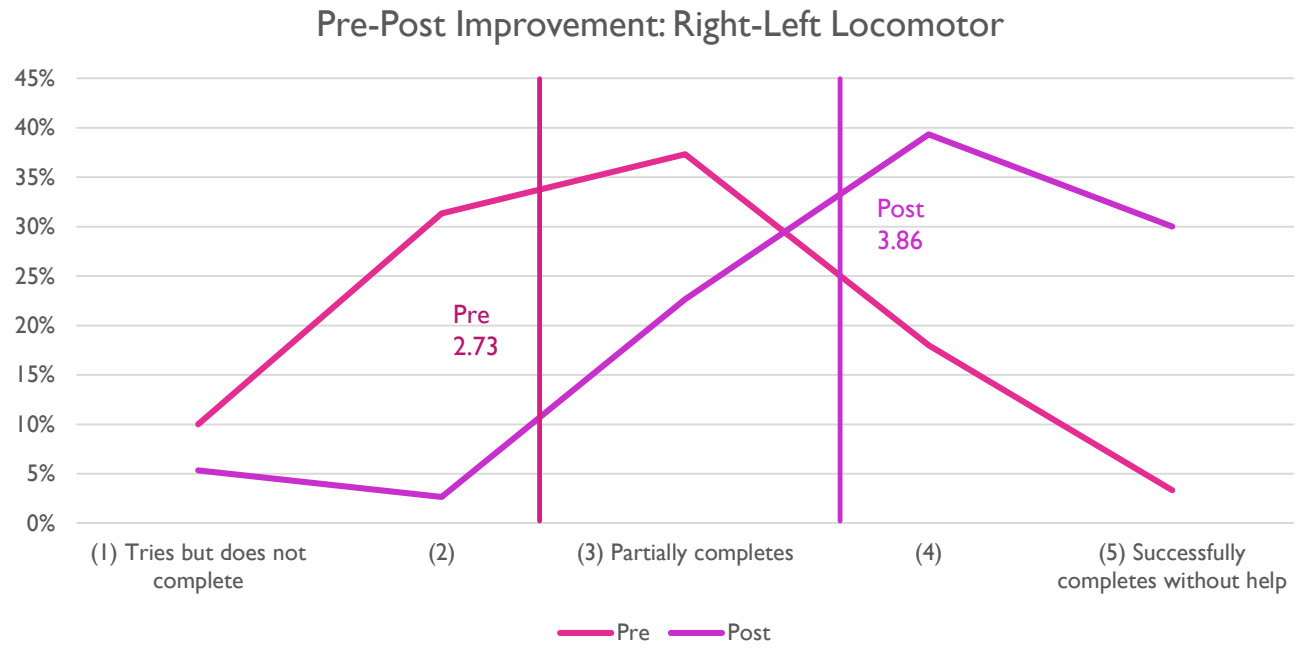
Percentage of preschoolers who improved (overall) on locomotor measures of Right-Left Body Halves:



Right-Left Body Halves-Locomotor

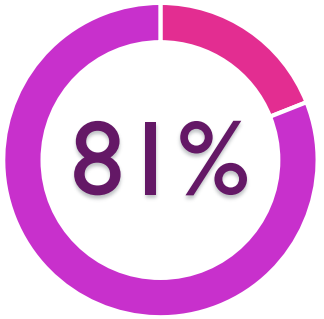
The graph to the right shows the distribution of average ratings for the locomotor Right-Left rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=150



THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

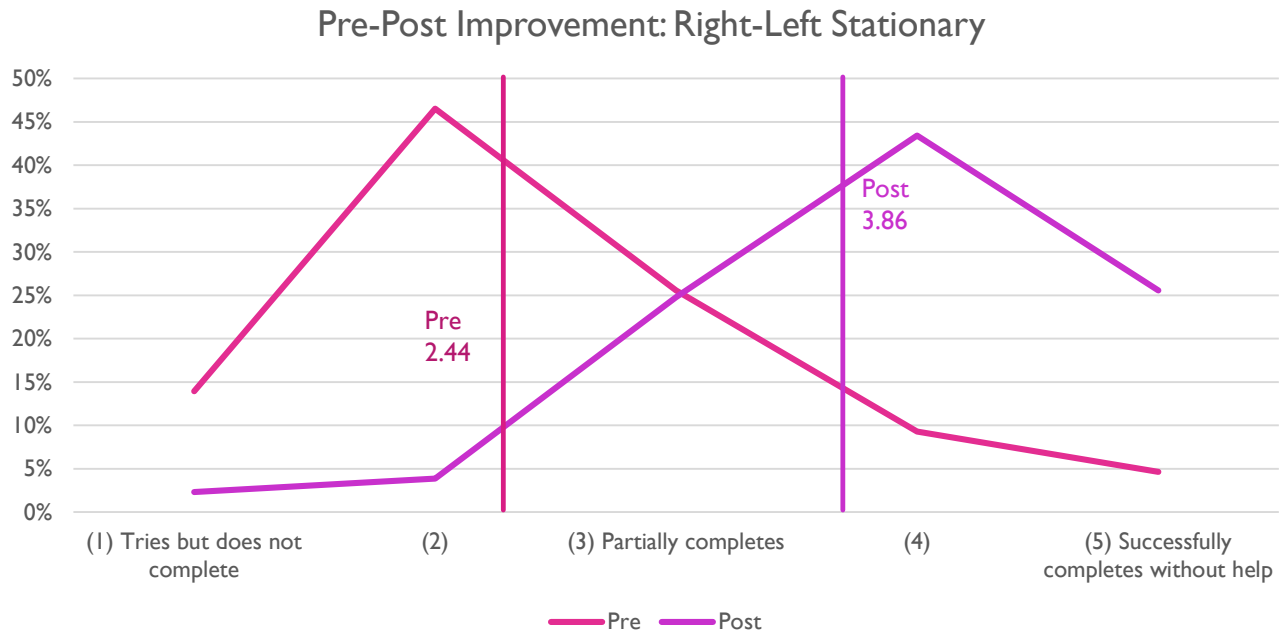
Percentage of preschoolers who improved (overall) on stationary measures of Right-Left Body Halves:



Right-Left Body Halves - Stationary

The graph to the right shows the distribution of average ratings for the stationary Right-Left rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=129



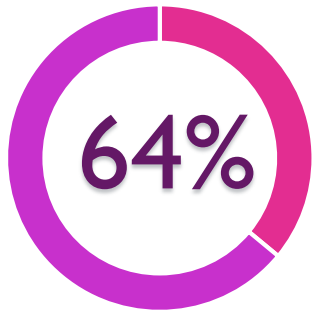
THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

Cross-Lateral Opposition / Diagonal

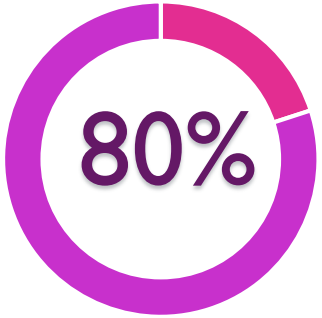
The "Cross-Lateral" concept focuses on the developmental motor skill of using opposite sides of the body to work together (movement example: monkey). This year, we broke the Cross-Lateral category into two sections: locomotor and stationary. Locomotor cross-lateral movement utilizes diagonal limbs (i.e., right arm and left leg or left arm and right leg), such as when marching and tapping one's knee with the opposite hand, while stationary movement remains in one spot.

$N_{locomotor}$=145 / $N_{stationary}$ =131

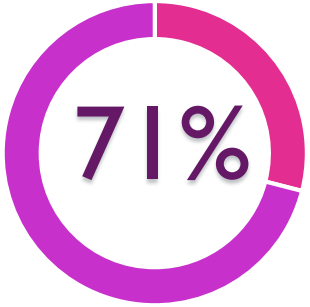
Percentage of preschoolers who improved (overall) on BOTH* measures of Cross-Lateral Opposition:



Percentage of preschoolers who improved (overall) on locomotor measures of Cross-Lateral Opposition:



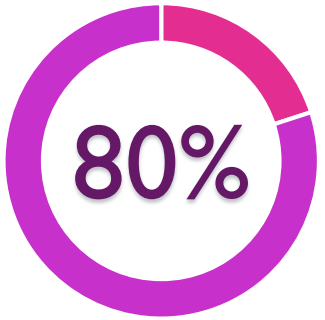
Percentage of preschoolers who improved (overall) on stationary measures of Cross-Lateral Opposition:



*This percentage reflects students who had participation recorded for *all four data points* – pre/post locomotor *and* pre-post stationary; n=126

THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

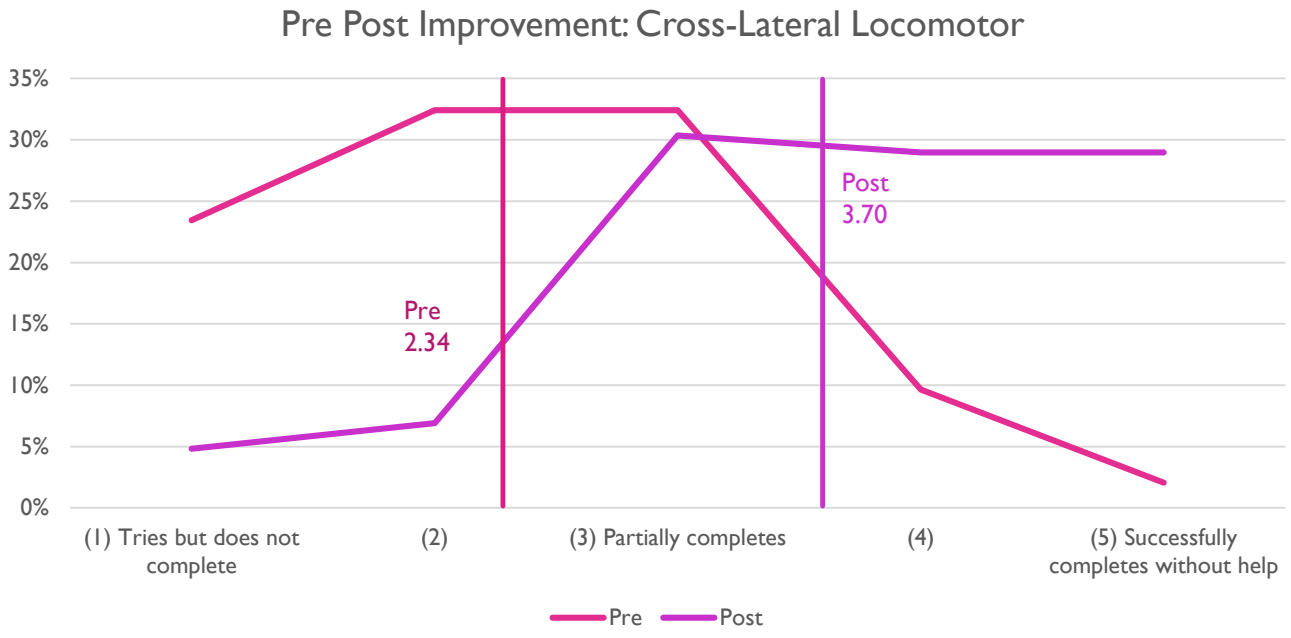
Percentage of preschoolers who improved (overall) on locomotor measures of Cross-Lateral Opposition:



Cross-Lateral Opposition / Diagonal - Locomotor

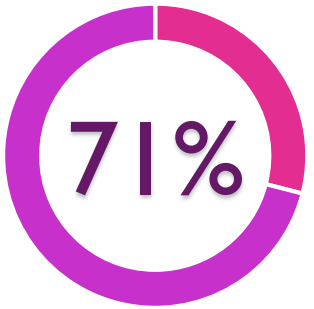
The graph to the right shows the distribution of average ratings for the locomotor Cross-Lateral rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=145



THE WIGGLE JIG'S IMPACT ON CHILDREN'S MOTOR DEVELOPMENT

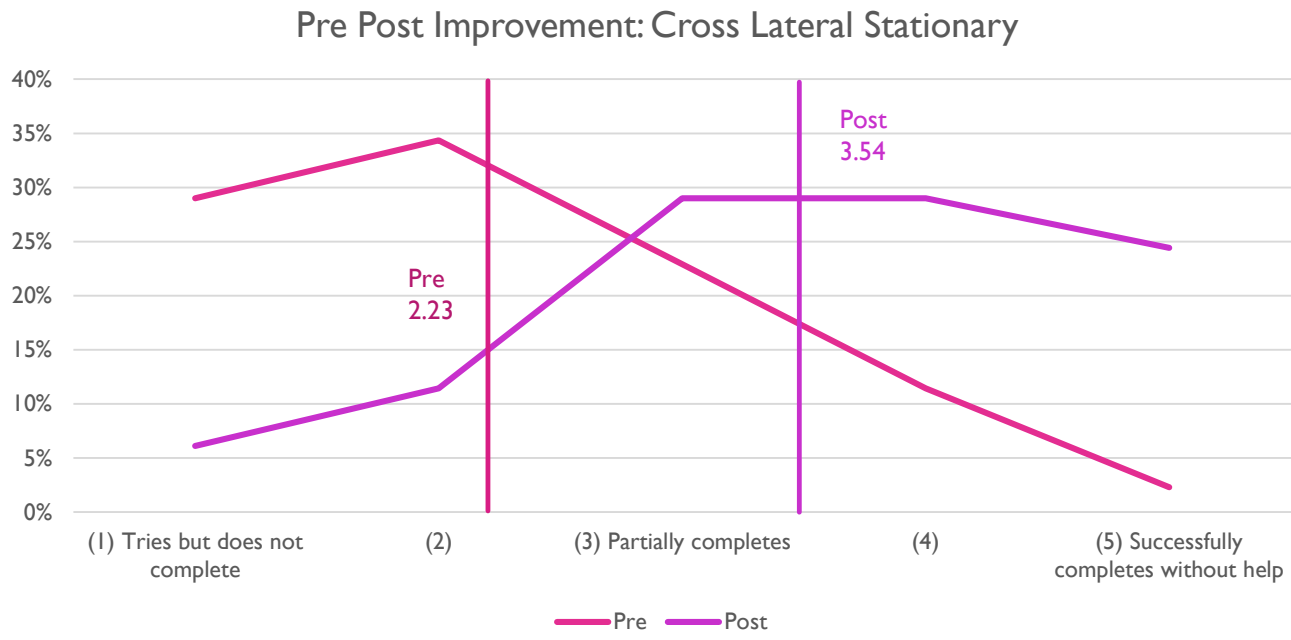
Percentage of preschoolers who improved (overall) on stationary measures of Cross-Lateral Opposition:



Cross-Lateral Opposition / Diagonal - Stationary

The graph to the right shows the distribution of average ratings for the stationary Cross-Lateral rubric measurement both at the beginning and end of the 10-week program for all students who participated in the movement. (Students who received a score of 0 – "did not participate" –for either the pre- or the post-measurement were not included.) The average rating (vertical lines) moved away from the lower scores of "Tries but does not complete" toward the higher ratings of "Successfully completes." This change was statistically significant.

N=131



THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

DID PARTICIPATING CHILDREN INCREASE THEIR EXECUTIVE FUNCTION SKILLS?

THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

Measuring Executive Function

The domain of executive functioning (EF) is defined as a set of "top-down processes involved in any cognitive work that demands novel thinking, thinking 'out of the box', operating in a non-automatic way. They underlie planning, cognitive control, self-control, and sustained attention (Carey, Zaitchik, & Bascandziev, 2015, p. 41). Also included in EF is working memory, which is defined as the ability to update and monitor information in real time.

Student Surveys (completed by classroom teacher)

At the beginning of each session and again at the end, teachers rated each child's executive function skills, including: inhibition, shifting, working memory, and planning and organizing. Survey questions were taken from the reliable and valid Ratings of Everyday Executive Function (REEF) questionnaire (Nilsen, Huyder, McAuley, & Liebermann, 2017) to assess each of the above categories.

THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

Inhibition

Inhibition refers to the ability to withhold a motor response or restrain an impulse (Garon, Bryson, & Smith, 2008). It has also been linked to attention (Anderson, 2002).

Preschoolers' ability to inhibit responses was measured by teachers' responses to the following statements. For each statement, teachers indicated whether the child displayed this ability or behavior… "Never | Once in a while | About half the time | Usually | Always".

<u>Inhibition was measured by the following statements:</u>

- Waits his/her turn in games and other activities
- Refrains from talking when others are talking
- Refrains from talking when asked to be silent

THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

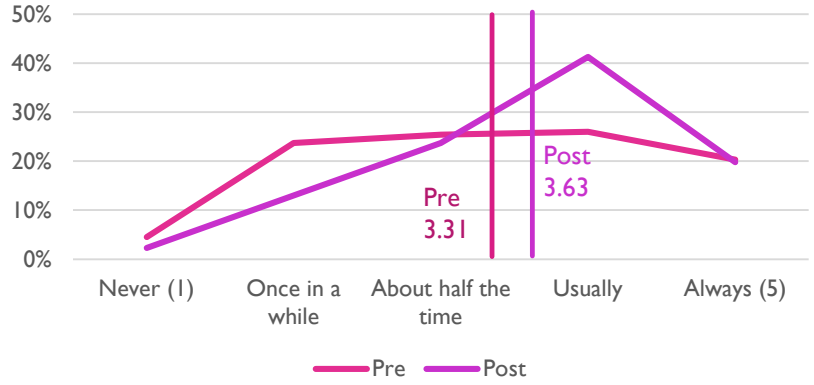
Inhibition (continued)

Children increase their ability to successfully inhibit responses after participating in *The Wiggle Jig*.

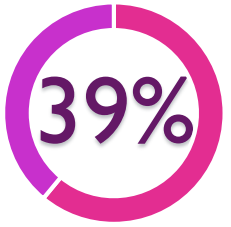
Overall, preschoolers taking part in *The Wiggle Jig* showed significant improvement in their ability to wait their turn (29% of preschoolers improved), refrain from talking when others are talking (33% of preschoolers improved), and refrain from talking when asked to be silent (31% of preschoolers improved), as rated by teachers. This makes sense, as dance instruction emphasizes the ability to use one's body rather than one's voice and wait one's turn during solo exercises.

While 29% of preschoolers improved overall, for students who *could* improve (i.e., students who received less than "always" on their pre-test), 39% showed improvement.

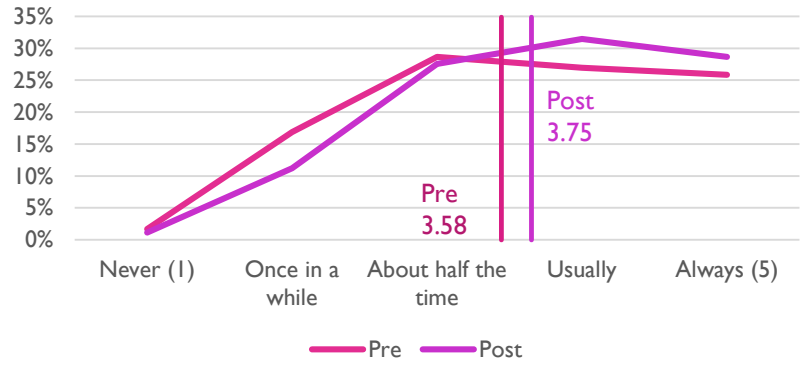
Refrains from talking when others are talking



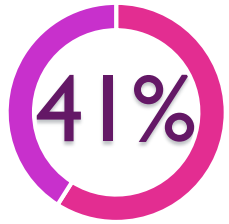
While 31% of preschoolers improved overall, for students who *could* improve (i.e., students who received less than "always" on their pre-test), 39% showed improvement.



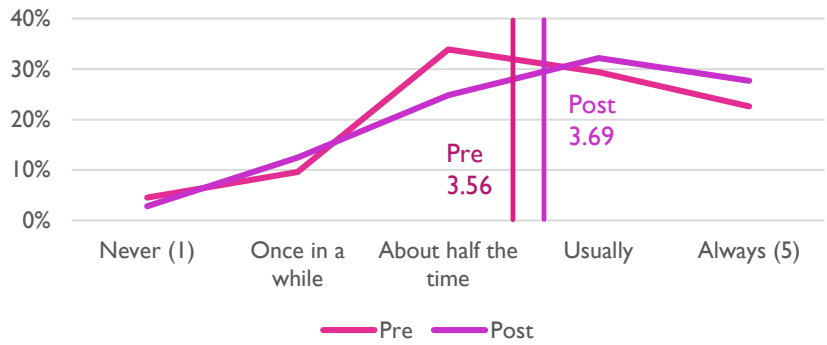
Waits his/her turn in games and other activities



While 33% of preschoolers improved overall, for students who *could* improve (i.e., students who received less than "always" on their pre-test), 41% showed improvement.



Refrains from talking when asked to be silent



THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

Shifting

The ability to shift behaviors and learn from mistakes, also sometimes referred to as cognitive flexibility, is another construct of EF (Anderson, 2002).

Preschoolers' ability to shift responses was measured by teachers' responses to the following statements. For each statement, teachers indicated whether the child displayed this ability or behavior… "Never | Once in a while | About half the time | Usually | Always".

<u>Shifting was measured by the following statements:</u>

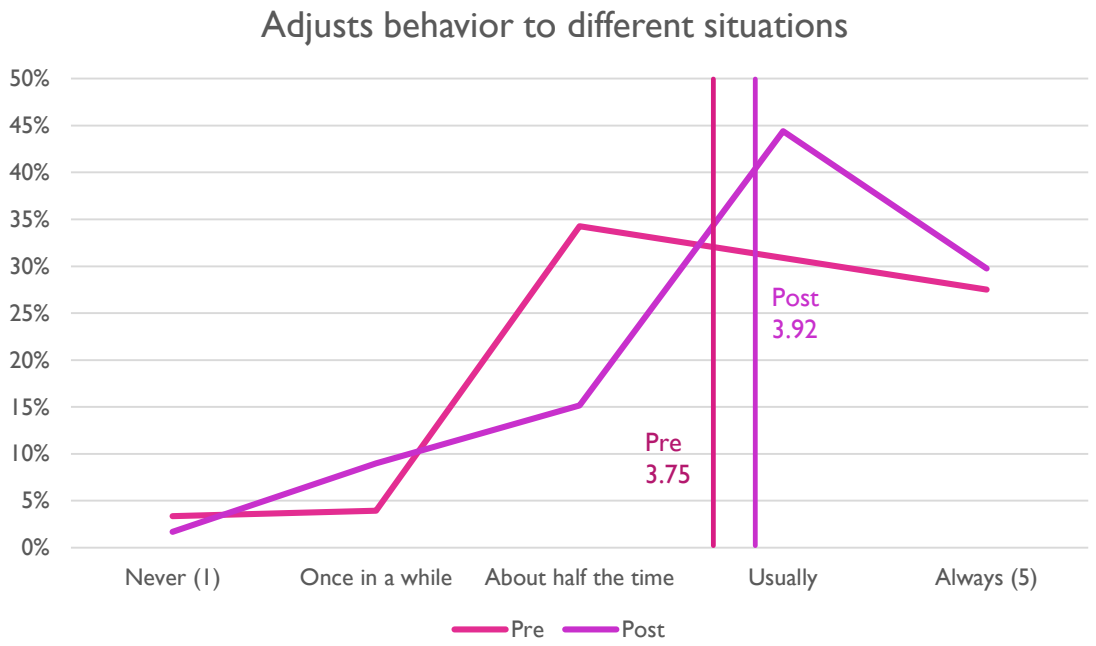
- Can shift gears and easily adapt behaviors to a new task
- Uses the same object for different or novel uses (e.g., uses a pencil as chopsticks)

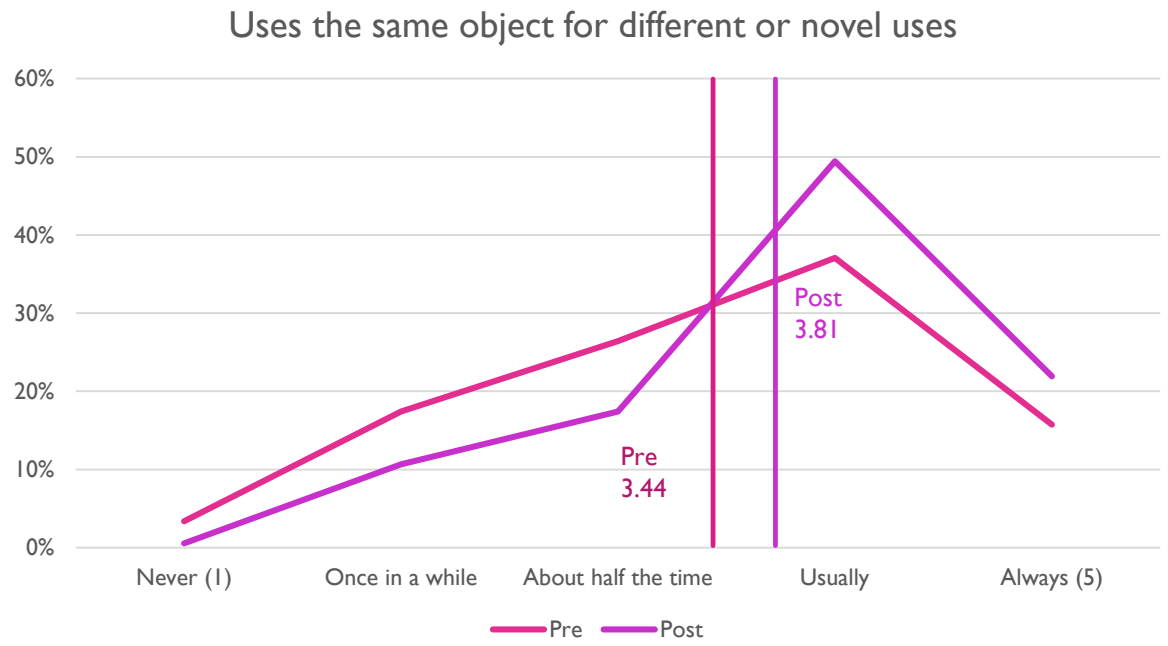
THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

Shifting (continued)

Children increase their ability to successfully shift responses after participating in *The Wiggle Jig*.

Overall, preschoolers taking part in *The Wiggle Jig* showed significant improvement in their ability to adjust behavior to different situations (40% of all students improved; 55% of all students who *could* improve did improve) and to use objects for novel things (38% of all students improved; 45% of all students who *could* improve did improve), as rated by teachers. This makes sense, as dance instruction is a new environment for students that requires different behavioral norms, and employs props (like scarves to represent butterfly wings) in creative movement.





THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

Working Memory

Working memory refers to the ability to update and monitor information in real time (Garon, Bryson, & Smith, 2008). As in inhibition, attention can also affect working memory.

Preschoolers' ability to use working memory skills was measured by teachers' responses to the following statements. For each statement, teachers indicated whether the child displayed this ability or behavior… "Never | Once in a while | About half the time | Usually | Always".

Working Memory was measured by the following statements:

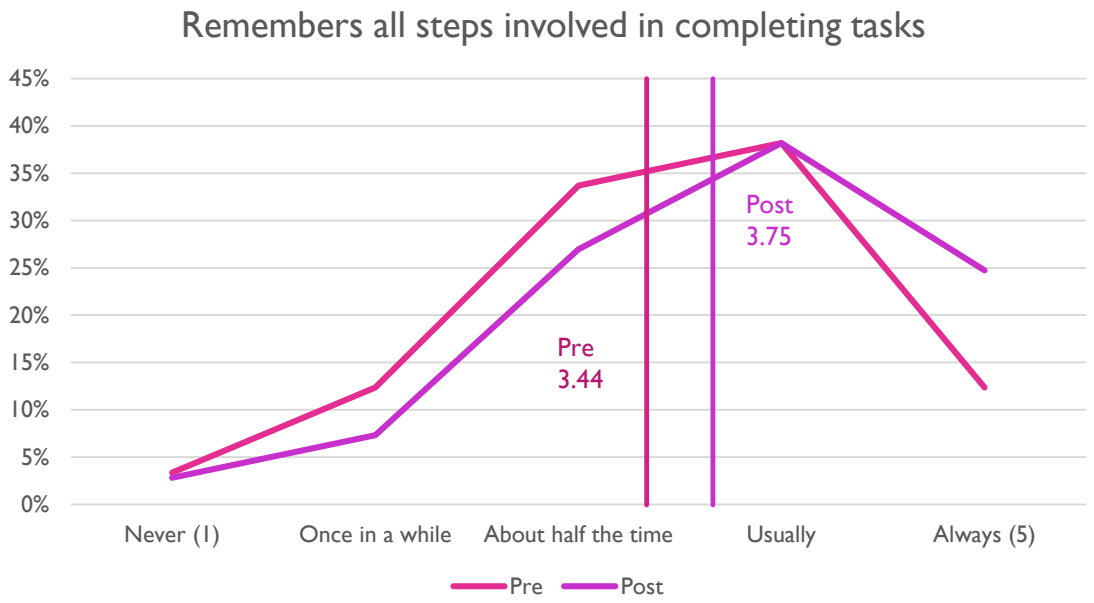
- Follows and plays games with two step directions (e.g., in a memory game, selects cards and checks if they match) without reminders
- Remembers all steps in completing tasks (i.e., does not forget halfway through activity)

THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

Working Memory (continued)

Children increase their ability to successfully employ working memory skills after participating in *The Wiggle Jig*.

Overall, preschoolers taking part in *The Wiggle Jig* showed significant improvement in their ability to complete tasks without forgetting steps (38% of all students improved; 44% of all students who *could* improve did improve), as rated by teachers. This makes sense, as dance instruction emphasizes the ability to remember sequenced movements. Though students improved in their ability to follow two-step directions (25% of all students improved; 31% of students who *could* improve did improve), this change was not statistically significant.



THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS

Planning/Organizing

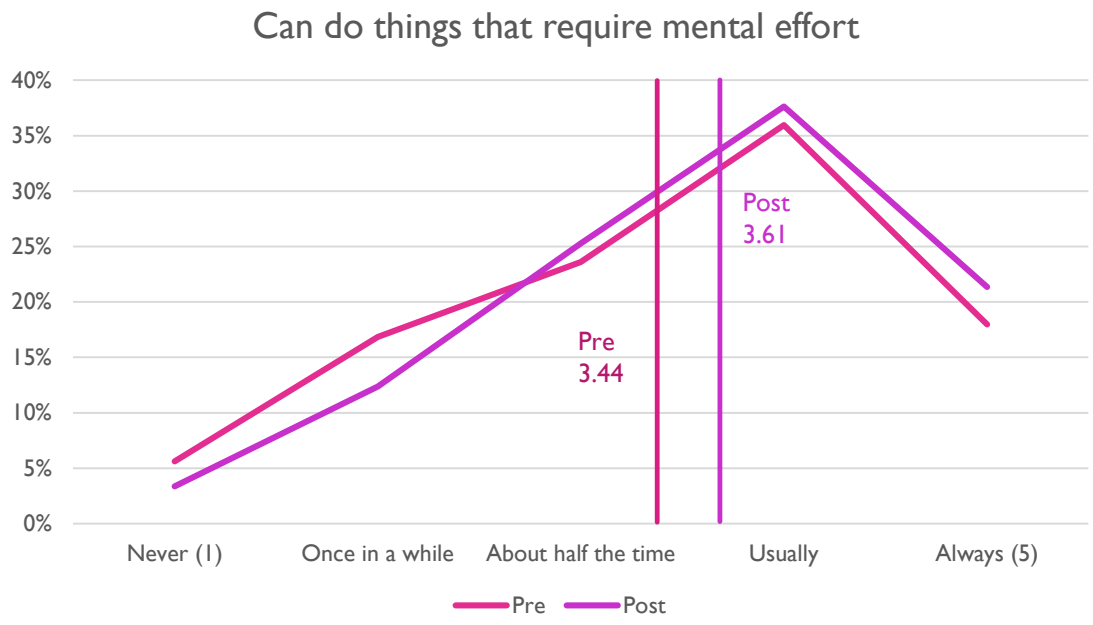
Planning requires managing task demands and organizing information logically (Nilsen, Huyder, McAuley, & Liebermann, 2017). Being able to recall information and answer questions correctly is also an important cognitive construct related to organizing information. This is arguably the most advanced concept measured for Executive Function.

Preschoolers' ability to plan and organize information was measured by teachers' responses to the following statements. For each statement, teachers indicated whether the child displayed this ability or behavior… "Never | Once in a while | About half the time | Usually | Always".

<u>Planning/Organizing was measured by the following statements:</u>

- Can do things that require mental effort (e.g., remembers previous events, correctly answers questions)
- Plans/talks about the next day's events

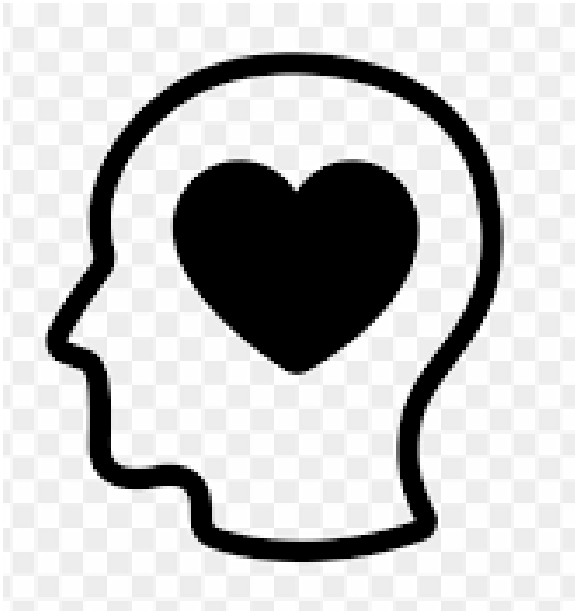
THE WIGGLE JIG'S IMPACT ON CHILDREN'S EXECUTIVE FUNCTION SKILLS



Planning and Organizing (continued)

Children increase their ability to plan and organize information after participating in *The Wiggle Jig*.

Overall, preschoolers taking part in *The Wiggle Jig* showed significant improvement in their ability to do things that require mental effort (29% of all students improved; 35% of those who *could* improve did improve). This makes sense, as dance class requires students to remember previous events and information as well as sequence and plan for movement activities. Though students showed improvement in their ability to plan and talk about the next day's events (32% of all students improved; 39% of those who *could* improve did improve), this change was not statistically significant.



THE WIGGLE JIG'S IMPACT ON CHILDREN'S SOCIAL EMOTIONAL SKILLS

DID PARTICIPATING CHILDREN INCREASE THEIR SOCIAL EMOTIONAL SKILLS?

THE WIGGLE JIG'S IMPACT ON CHILDREN'S SOCIAL EMOTIONAL SKILLS

Measuring Social Emotional Skills

In a broad sense, socio-emotional development involves a child's ability to understand and regulate her or his own emotions and to have positive relationships with others by being able to understand and respond to theirs and others' emotions. Researchers consider the foundations of socio-emotional development to include sustained positive engagement with peers and regulating emotional experiences and expressiveness. This kind of emotional control involves managing, modulating, inhibiting, and enhancing emotion (Denham, 2006).

Student Surveys (completed by classroom teacher)

At the beginning of each session and again at the end, teachers rated each child's social-emotional skills, including: emotional expression and cooperation. Survey questions were taken from the Social-Emotional Assessment Measure for 3-5 year-olds (Squires, Bricker, Waddell, Funk, Clifford, & Hoselton, 2009).

THE WIGGLE JIG'S IMPACT ON CHILDREN'S SOCIAL EMOTIONAL SKILLS

Emotional Expression

Emotional expressiveness refers to a preschooler's ability to express how they are feeling through facial expressions, body language, tone, and voice. Positive affect is particularly important, especially in terms of sustaining positive relationships (Denham, 2006).

Preschoolers' ability to express and understand emotion was measured by teachers' responses to the following statements. For each statement, teachers indicated whether the child displayed this ability or behavior… "Never | Once in a while | About half the time | Usually | Always".

<u>Emotional Expression was measured by the following statements:</u>

- Shows affection and empathy toward you, familiar adults and children
- Smiles and laughs

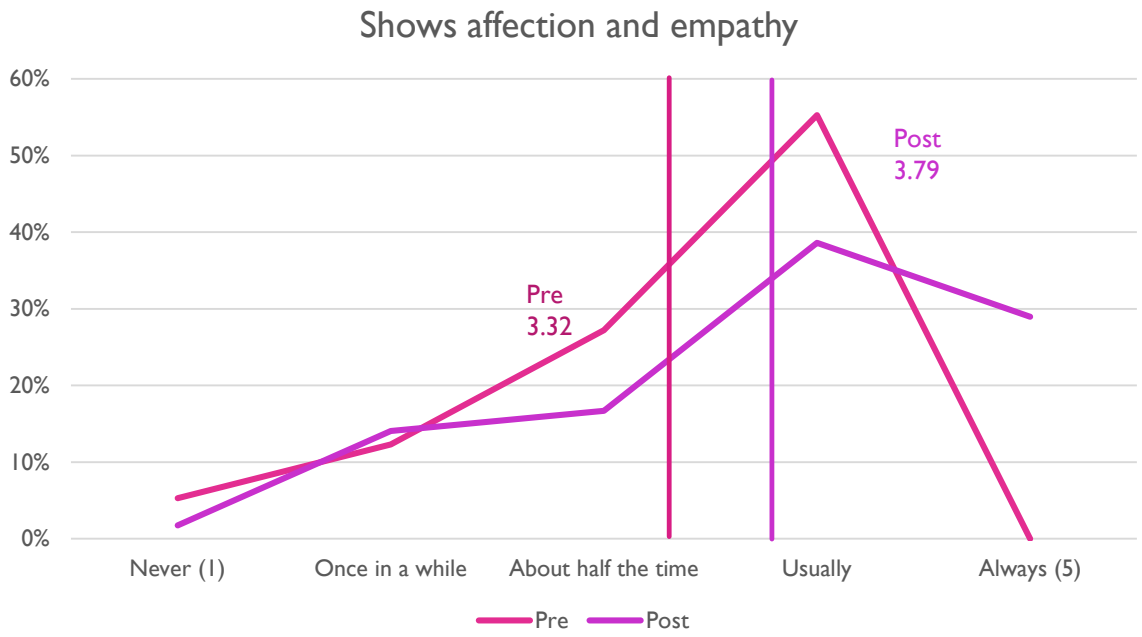
THE WIGGLE JIG'S IMPACT ON CHILDREN'S SOCIAL EMOTIONAL SKILLS

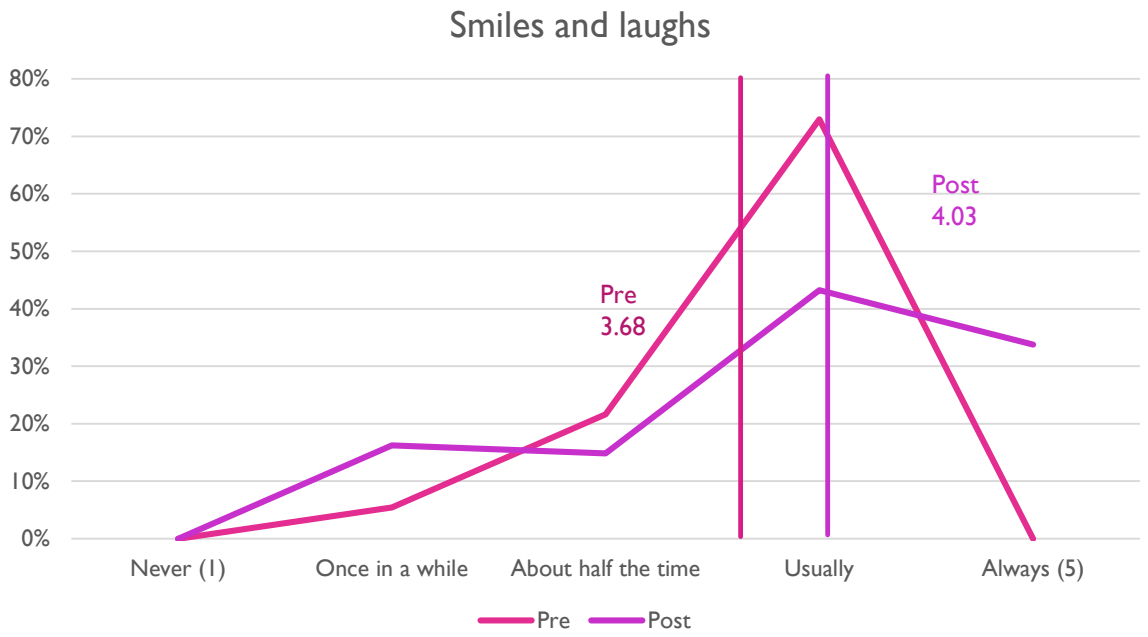
Emotional Expression (continued)

Children increase their ability to successfully express and understand their own and others' emotions after participating in *The Wiggle Jig*.

Overall, preschoolers taking part in *The Wiggle Jig* showed significant improvement in their ability to show affection and empathy (55% of all students who *could* improve did improve) and smiling and laughing (41% of all students who *could* improve did improve), as rated by teachers. This makes sense, as dance instruction emphasizes the ability to express emotions without words.

*It is important to note that for both of these questions, 71% and 89% of children, respectively, scored either a 4 or 5 on the pre-test, so students already demonstrated strong characteristics of emotion expression across the board prior to the dance program. When accounting for those students who *could* show improvement, students still significantly improved their emotion expression as shown in the graphs below.





THE WIGGLE JIG'S IMPACT ON CHILDREN'S SOCIAL EMOTIONAL SKILLS

Social Relationships and Cooperation

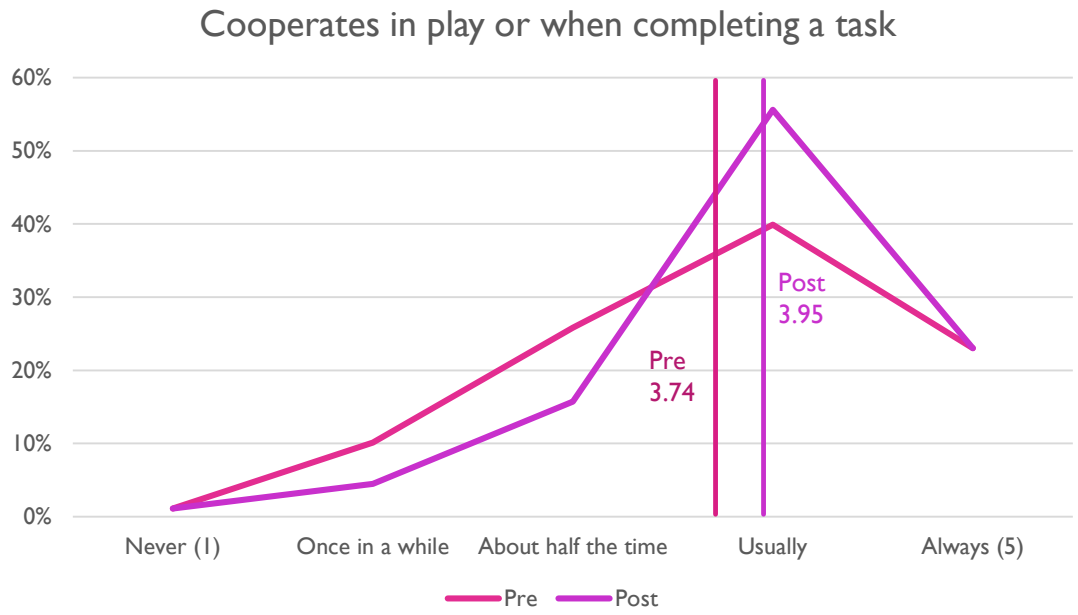
Social relationships as a socio-emotional developmental construct refer to social skills and positive and prosocial interactions among peers.

Preschoolers' ability to cooperate was measured by teachers' responses to the following statement. For each statement, teachers indicated whether the child displayed this ability or behavior… "Never | Once in a while | About half the time | Usually | Always".

<u>Cooperation was measured by the following statement:</u>

- Cooperates in play or when completing a task

THE WIGGLE JIG'S IMPACT ON CHILDREN'S SOCIAL EMOTIONAL SKILLS



Cooperation (continued)

Children increase their ability to successfully cooperate with peers after participating in *The Wiggle Jig*.

Overall, preschoolers taking part in *The Wiggle Jig* showed significant improvement in their ability to cooperate with others (30% of all students improved; 39% of students who *could* improve did improve), as rated by teachers. This makes sense, as dance instruction uses requires working with others, such as navigating shared space or taking turns.

*It is important to note that for this question, 63%of children scored either a 4 or 5 on the pre-test, so students already demonstrated strong characteristics of cooperation across the board prior to the dance program. Despite that, this category showed significant improvement after the dance program.

TEACHER FEEDBACK ON *THE WIGGLE JIG*

WHAT DID TEACHERS THINK OF THE PROGRAM AFTER SESSION COMPLETION?

TEACHER FEEDBACK ON *THE WIGGLE JIG*

Teachers find Value in Incorporating Dance/Movement in their Classroom

After completing *The Wiggle Jig,* the classroom teachers were asked a series of questions about their experience with the program. In all, 17 teachers completed both the pre- and post-survey.

Value of dance/movement in the classroom

Nearly all teachers who completed post surveys reported dance/movement was "Extremely" valuable (57%) or "Very" valuable (41%).

Teachers also noted the developmental benefits of the program:

- *"Our students LOVED the weekly class. They looked forward to their special activity. We love being able to provide activities for our students outside of our curriculum that will help students thrive, socialize, and increase their learning skills."*
- *"Listening, patience, and persistence has increased immensely with our group"*
- *Our listening ears during movement time increased. Our line up and following skills improved. We could see the change in our class and are very grateful for the time we got with Wiggle Jig."*
- *"The ability to dance provided the children with spatial awareness, coordination skills and attention to detail. I think it also taught the children patience as well as self confidence to try new things."*
- *"Helps students recognize their space and maintain better control of their bodies"*

TEACHER FEEDBACK ON *THE WIGGLE JIG*

Teachers are more likely to use dance/movement in the classroom

In the post survey, 53% of teachers reported that they used dance/movement in the classroom more than in the pre-survey. 65% said they were "Extremely" likely to use dance/movement in the classroom, and another 29% said they were "Very" likely to use dance/movement in the classroom on their own.

Teachers are more confident in their ability to use dance/movement in the classroom

In the post survey, 71% of teachers were either "Extremely" or "Very" confident using dance/movement in the classroom.

- 62% of the teachers who completed both a pre- and post-survey, and who had not said they were "Extremely" confident before the program (i.e., those who *could* show an increase), showed an increase in confidence.

TEACHER FEEDBACK ON *THE WIGGLE JIG*

Teachers recognize the impact of the program

- In the post survey, when asked how much *The Wiggle* Jig influenced motor skills, 72% of teachers said answered "Very" or "Extremely"
  - All teachers believed the program had *at least* a moderate impact on motor skills
- In the post survey, when asked how much *The Wiggle* Jig influenced social emotional skills, 67% of teachers said answered "Very" or "Extremely"
  - All teachers believed the program had *at least* a moderate impact on social emotional skills
- In the post survey, when asked how much *The Wiggle* Jig influenced executive function skills, 53% of teachers said answered "Very" or "Extremely"
  - All teachers believed the program had *at least* a moderate impact on executive function skills

These results suggest that while classroom teachers do understand the impact of the program to some extent, they should be made more aware of the direct correlation between *The Wiggle Jig* and social-emotional learning/executive function and how specific activities in *The Wiggle Jig* engage those skills.

Ballet Met

EDUCATION

IMPACT EVALUATION OF *THE WIGGLE JIG* PROGRAM (2023-2024): KEY TAKEAWAY

This robust evaluation of The Wiggle Jig *program (2023-2024) finds considerable evidence to suggest this program has a significantly positive impact on preschoolers' motor control, executive function, and social emotional skills.*

Ballet Met

EDUCATION

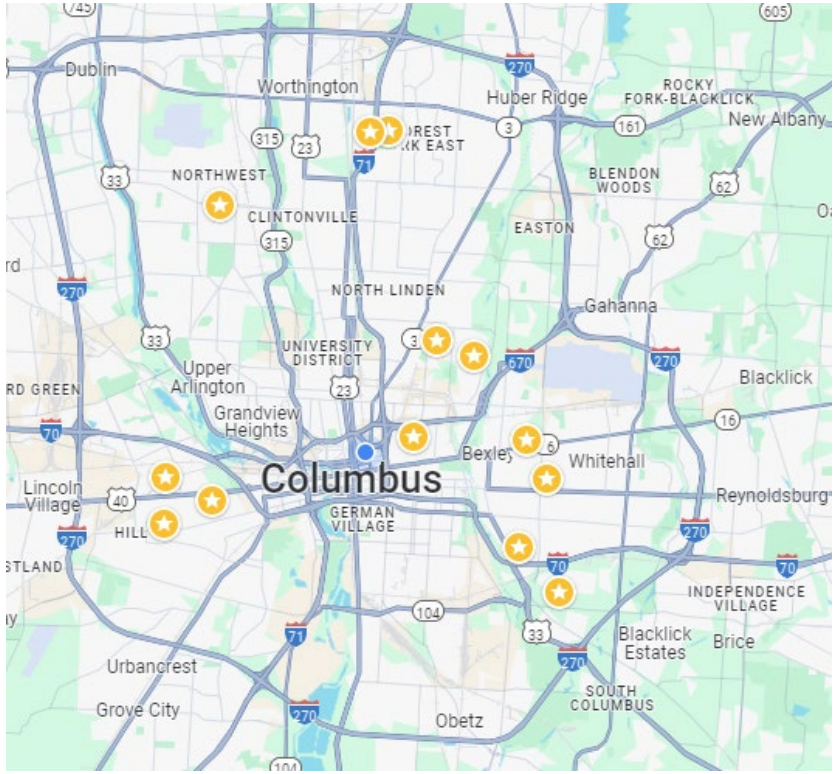
ADDITIONAL IMPACT EVALUATION: 4-WEEK *WIGGLE JIG* PILOT PROGRAMS

A NEW FORMAT DELIVERED IN 2023-2024

PILOT PROGRAM DESCRIPTION

- In October of 2023, Columbus City Schools' (CCS) Pre-K coordinator contacted BalletMet to request programming for their Special Needs Preschool (SNP) classrooms. These classrooms have 6-8 students and are specifically meant for students with disabilities. Based on the existing structure of other CCS partnerships, they requested a 4-week version of *The Wiggle Jig* program for multiple locations within Columbus City Schools.
- The format of the classes remained similar to the longer program, but because of the significantly shorter length of each program as well as the fact that all classrooms were SNP classrooms, we opted to use a different evaluation tool to independently analyze this pilot program.

4-WEEK *WIGGLE JIG* PARTICIPATION: 2023-2024

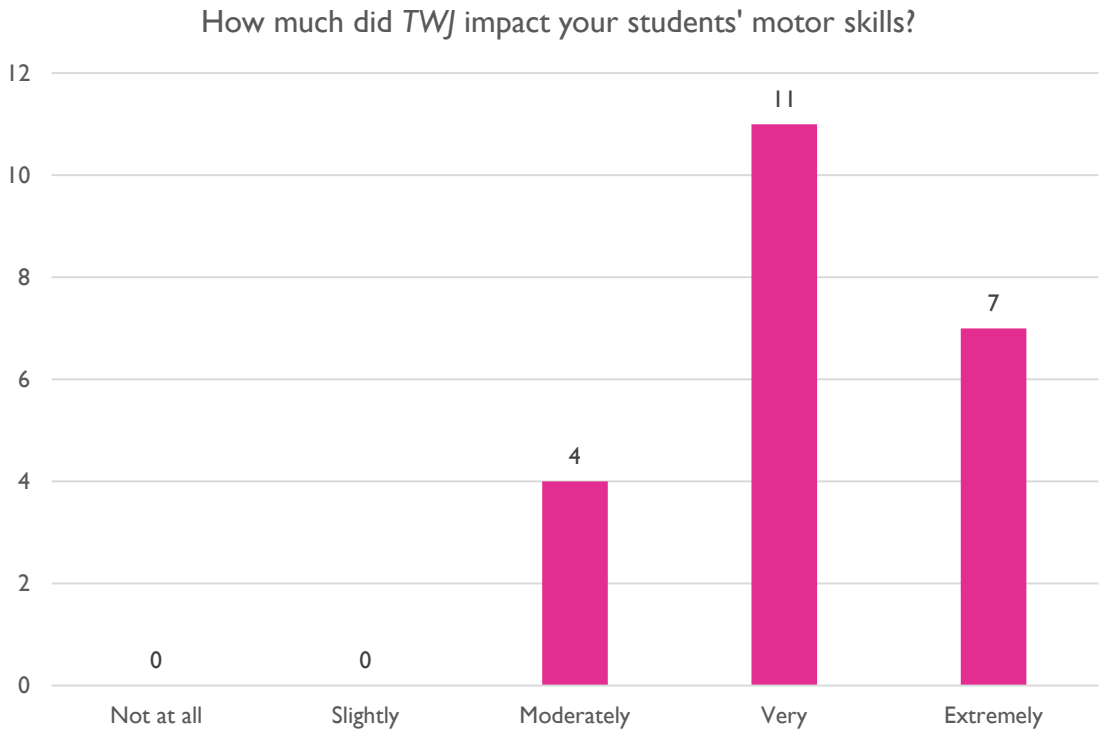


- Over the 2023-2024 school year:
  - *The Wiggle Jig* pilot was delivered in 4-week blocks between November, 2023 and May, 2024
  - During that time, a total of **26 preschool classes** at **13 CCS Schools across central Ohio** received the abbreviated pilot program.
  - In total, **201 preschool children in SNP classrooms** participated in a 4-week *The Wiggle Jig* session during the 2023-2024 time period. BalletMet hopes to continue this partnership in the coming years, and possibly grow the programs both in the number of classrooms and in the length of the residency.

ANALYTIC APPROACH: RESEARCH METHODS

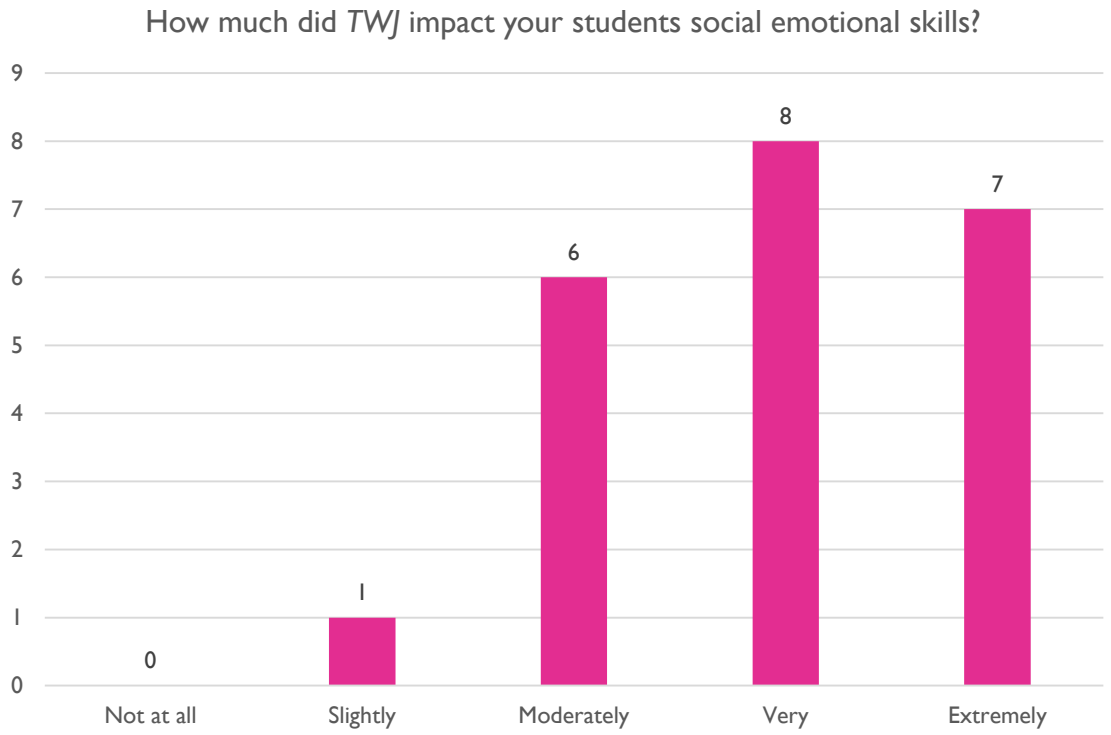
- Due to the shortened nature of these programs, rather than using a pre-post survey approach, we provided classroom teachers one post-survey for each classroom that addressed individual aspects of the 10-week program evaluation protocol. Teachers discussed:
  - Their perception of the value of movement in the classroom
  - How they thought the program generally impacted motor development in students
  - How they thought the program generally impacted social emotional development in students
  - How they thought the program generally impacted executive function in students
- In the future, BalletMet will employ a more rigorous evaluation protocol with pre- and post- measures to address the above concepts.
- In total, **22 surveys** were collected from classroom teachers.

IMPACT EVALUATION: MOTOR SKILLS



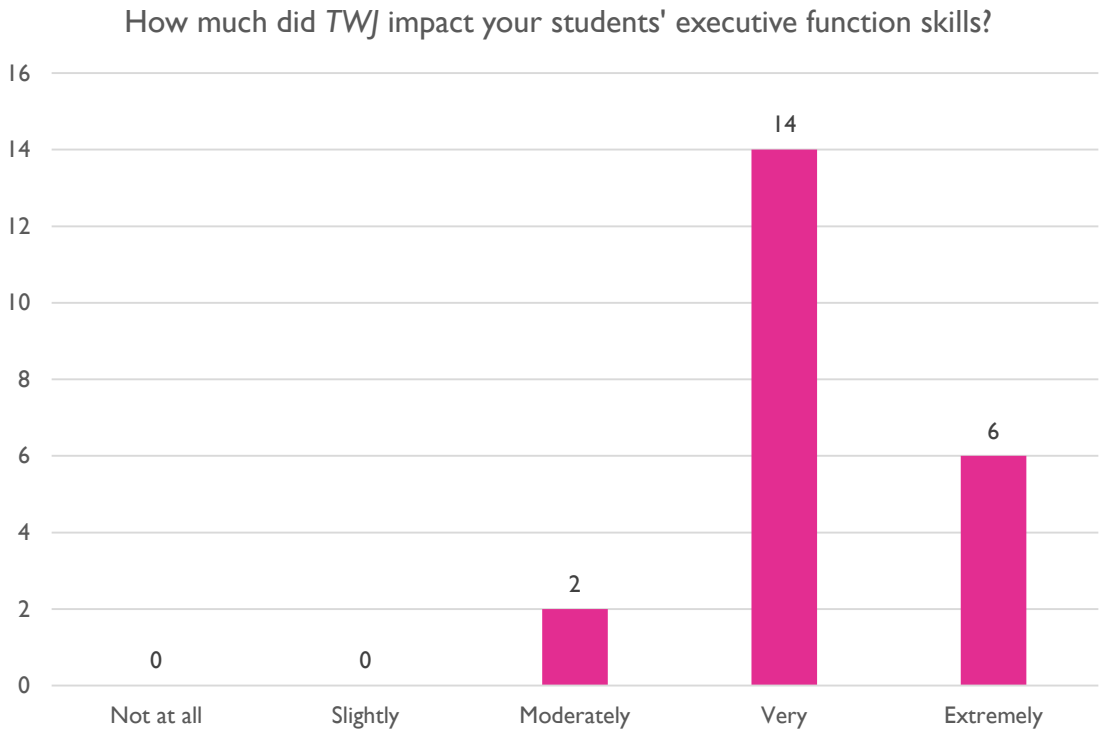
- **In general, teachers noticed a positive impact on motor skills.**
  - All teachers noted *at least* a moderate effect on student motor development
  - 81% of teachers noted described the program as Very (50%) or Extremely (32%) impactful
- Teacher comments included:
  - "They loved it! They were frequently seen repeating movements in their play"
  - "The kids imitated the movements after Wiggle Jig and parents reported kids enjoying it as well."
  - "Students were more willing to participate in regularly scheduled physical therapy/yoga/other gross motor activities this month - using their skills from Wiggle Jig"
  - "Many students receive physical therapy. The dance class reinforced skills they are working on."

IMPACT EVALUATION: SOCIAL EMOTIONAL SKILLS



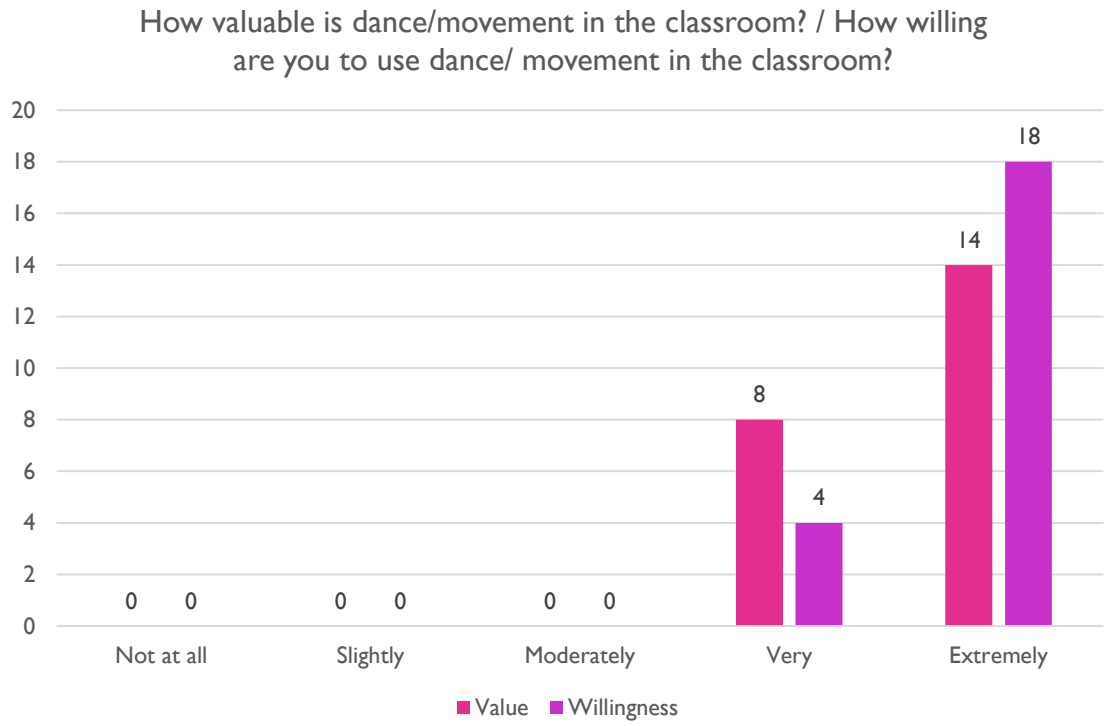
- **In general, teachers noticed a positive impact on social emotional skills.**
  - All teachers noted *at least* a slight effect on student motor development
  - 68% of teachers noted described the program as Very (36%) or Extremely (32%) impactful
- Teacher comments included:
  - "Students were much more calm directly after 'dance class'"
  - "Music and dancing is very calming for our students and helps them get regulated."
  - "Students learned to show excitement non-verbally"
  - "Students used the 'star pose' as a coping skill to go with breathing"

IMPACT EVALUATION: EXECUTIVE FUNCTION



- **In general, teachers noticed a positive impact on executive function skills.**
  - All teachers noted *at least* a moderate effect on student motor development
  - 91% of teachers noted described the program as Very (64%) or Extremely (27%) impactful
- Teacher comments included:
  - "Flexibility of thought - representing different things, moving different ways than we usually do"
  - "Following directions"
  - "We actually saw a huge increase in verbal/math communication right after class from a couple students!"
  - "Students remembered Wiggle Jig was coming. Students remembered the animals as well as the moves."

IMPACT EVALUATION: OVERALL PERCEPTION OF PROGRAM



- **Overall, teachers see the value of using dance and movement in the classroom.**
  - All teachers stated that dance/movement is very valuable (36%) or extremely valuable (64%).
- **Overall, teachers are willing to use dance/movement in the classroom.**
  - All teachers stated that they are very willing (18%) or extremely willing (82%) to use dance/movement in the classroom.

IMPACT EVALUATION: OVERALL PERCEPTION OF PROGRAM

- Teachers stated how much they and their students enjoyed the program and benefitted from *The Wiggle Jig*, and praised BalletMet teaching artists for their compassion and expertise.
- General teacher comments included:
  - "BEST PROGRAM!!"
  - "Gave great chance for [students] to practice rules and expectations with others!! Thank you so much!"
  - "[The BalletMet teachers] were so kind and patient. The kids absolutely loved it"
  - "Thank you for coming! You guys are amazing! I loved getting new ideas to use with our students."
  - "Thank you! They loved it and the teachers were so kind and loving!"

KEY TAKEAWAYS: 4-WEEK *WIGGLE JIG* PILOT PROGRAM

- The program positively influenced motor, social emotional, and executive function skills, as reported by teachers
- Teachers valued the program and appreciated the BalletMet teachers for their work with the students
- Teachers are willing to use dance and movement within their own classrooms
- Limitations:
  - An ideal evaluation protocol would use both pre- and post-measures and take more specific measurements of components of each construct. Since this was only a general post-survey given to teachers, we cannot specifically understand the amount of growth in students in each developmental area.
  - After the successful completion of the pilot program, future programs will employ a more rigorous evaluation protocol to better understand the nature of the impact of a shortened *Wiggle Jig* on students.

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