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**THE EFFECTIVENESS OF A WEB-BASED MOTOR INTERVENTION PROGRAM ON MOTOR AND PSYCHOSOCIAL ABILITIES OF CHILDREN WITH DCD: A PRELIMINARY STUDY**

Karyssa Nelson

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THE EFFECTIVENESS OF A WEB-BASED MOTOR INTERVENTION  
PROGRAM ON MOTOR AND PSYCHOSOCIAL  
ABILITIES OF CHILDREN WITH DCD:  
A PRELIMINARY STUDY

by

KARYSSA NELSON

Presented to the Faculty of the Honors College of  
The University of Texas at Arlington in Partial Fulfillment  
of the Requirements  
for the Degree of

HONORS BACHELOR OF SCIENCE IN PSYCHOLOGY

THE UNIVERSITY OF TEXAS AT ARLINGTON

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December 17, 2021

## ABSTRACT

### THE EFFECTIVENESS OF A WEB-BASED MOTOR INTERVENTION PROGRAM ON MOTOR AND PSYCHOSOCIAL ABILITIES OF CHILDREN WITH DCD: A PRELIMINARY STUDY

Karyssa Nelson, B.S. Psychology

The University of Texas at Arlington, 2021

Faculty Mentor: Priscila (Caçola) Tamplain

Group intervention programs are known to improve motor and psychosocial skills in children with motor difficulties, however, many programs were suspended due to COVID-19. Therefore, we investigated the effectiveness of a web-based asynchronous intervention on the motor and psychosocial abilities of children with DCD. The Strengths and Difficulties Questionnaire, Developmental Coordination Disorder Questionnaire, and Motor Ability Questionnaire were completed before and after eight sessions. No significant differences were seen on the DCDQ, but effect sizes were found for the MAQ in jumping ( $d = .28$ ), grasping ( $d = .27$ ), lacing ( $d = .70$ ) and overall ability ( $d = .30$ ). For the SDQ, small effect sizes emerged for Peer Problems ( $d = .47$ ) and Internalizing Problems ( $d = .35$ ), and a large effect size on the Impact Scale ( $d = 1.76$ ). This data supports that a web-based

intervention may be effective in supporting children's motor and psychosocial skills.

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Introduction to Developmental Coordination Disorder

Developmental Coordination Disorder (DCD) is a neuromotor disorder that can be defined as having “marked impairment in the development of motor coordination” and can be characterized as having severe difficulties in learning everyday activities that cannot be explained by another impairment, such as intellectual disabilities (American Psychiatric Association, 2013). The most common symptoms of DCD include delays in reaching motor milestones as well as poor balance and coordination skills. It is also common that children have dysfunctions that are grouped into three categories: gross motor, fine motor, and psychosocial (Barnhart et al., 2003). Gross motor dysfunction may include hypotonia, immature balance reactions, and persistence of primitive reflexes (Barnhart et al., 2003). Children may also have difficulties imitating positions, may fall often, and may drop items frequently. Fine motor dysfunction is most commonly seen in difficulties with writing or drawing and can also be observed in difficulties planning and executing skills such as gripping and dressing (Barnhart et al., 2003).

Symptoms of DCD often create difficulties when it comes to academic achievement as well as psychosocial problems such as increased susceptibility to anxiety and depressive disorders (Draghi et al., 2020). It has also been reported that children with DCD may be at increased risk for lower intelligence and may exhibit less socially desirable means of gaining friends (Barnhart et al., 2003). One study suggests that children with

DCD also struggle with psychosocial adjustment as well as attention and learning difficulties, finding that there is a strong correlation between inattention and movement difficulties (Dewey et al., 2003). In children with DCD, these difficulties often extend to emotional and behavioral problems, which may in part be due to the social isolation that results from children with DCD tending to exhibit fewer prosocial behaviors (Dewey et al., 2003).

### 1.2 Motor Interventions for Children with DCD

When it comes to treatment approaches for DCD, activity-oriented intervention programs are a recognized way to effectively develop motor skills. These programs have been recorded to have a positive effect on motor skills and function over time (Smits-Engelsman et al., 2018).

Such interventions have been carried out in recent years by the Developmental Motor Cognition Lab at the University of Texas at Arlington. Prior to the COVID-19 pandemic and subsequent quarantines beginning in 2020, the University of Texas at Arlington offered the Little Mavs Movement Academy. This was a group-based intervention program for children five to ten years of age, in which motor ability and motor repetition were addressed in a variety of activities. This program took place each semester at UTA and lasted approximately one hour for one day each week over the course of ten weeks. Children were paired with a UTA student volunteer, and the child completed between 14-18 activities. These activities focused on gross motor skills, fine motor skills, dexterity, coordination, and more.

Unfortunately, after the onset of the COVID-19 pandemic, it was no longer possible to offer in person group-based intervention programs that ensured the safety of the children and their families.

At this time, very few studies have been conducted to assess the feasibility of an online motor intervention program. However, one study has evidence that when enrolled in a telehealth pediatric occupational therapy program, the families of the children enrolled were satisfied with the care they were provided (Zylstra, 2013). More common were studies measuring how motor improvements in children who had undergone injury or brain damage, in which case there were statistically significant improvements in motor abilities as the result of an online intervention program (Cox et al., 2009), although other studies suggested that the statistical significance found did not constitute clinical significance (Baque et al., 2016). Therefore, there has previously been a lack of clear conclusions about the effectiveness of a web-based intervention program. It is interesting to note that although the study investigating the gross motor improvement in children with brain injuries did find significant results, there was a high participant drop-out rate (Cox et al., 2019). Overall, however, few studies were completed on the efficacy of web-based interventions for children with motor delays or developmental disorders.

At the time of the COVID-19 quarantine in 2020, studies found that there was a substantial decrease in physical activity accompanying an increase in screen time as a result of online schooling, work, and other activities (Xiang et al., 2020). Based on these findings, researchers predicted that there would be a negative impact on adolescents' physical and mental health due to previous findings that physical activity provides protection from viral infections (Xiang et al., 2020). Another study suggested that further isolation of children

with DCD due to the COVID-19 pandemic may put the already-susceptible children with DCD at further risk for anxiety and depressive disorders (Cavalcante & Draghi, 2021).

Due to the need for additional motor skill practice and interventions in an online format, some organizations shared videos and images of activities that could be conducted from home to work on children's motor skills using common household items or other accessible materials. For example, the non-profit organization, *We Care Children* (We Care Children, 2021) offered lists of activities for parents to complete with their children from home to continue working on physical activities and served to educate parents on early interventions in children with motor development disorders.

Although informal practices were provided to parents of children with DCD to continue practicing motor skills, the effectiveness of these activities as well as the feasibility of delivering a structured motor intervention program virtually was still largely unknown. As a result, in this study we aimed to determine the feasibility of delivering an intervention program virtually as well as the effectiveness of a web-based intervention program on motor and psychosocial abilities of children with DCD.

## CHAPTER 2

### METHODOLOGY

#### 2.1 Study Design

This was a pilot study consisting of a pre- and post-test conducted before and after a web-based, asynchronous motor intervention program for children with DCD. The program took place over the course of eight weeks, beginning in March of 2021 and concluding in April of the same year. Eight, asynchronous sessions, each containing five core activities, a warm-up, cool down, and word of the day were delivered weekly via a private YouTube channel. The experimental protocol and consent form were approved by the Institutional Review Board (IRB) for the ethical treatment of human subjects. Families of the child participants scheduled phone appointments for registration after expressing interest in the program, and at least one guardian signed the consent form and completed the pre- and post-test questionnaires. Participants were informed of the experimental procedures and voluntarily signed a consent form before participating in this study.

#### 2.2 Participants

A total of 13 children with DCD between 5- and 10-years of age were signed up for the intervention program. Five females and eight males were enrolled in the program, which consisted of eight sessions which were approximately 40-60 minutes in length and were released once a week for eight weeks. Recruitment for the program was done primarily through advertisement on Facebook. In addition to the initial recruitment post made by the Developmental Motor Cognition Lab Facebook account, various Facebook

users shared the invitation flyer to different Facebook groups for parents of children with motor difficulties. Interested guardians then replied and their children were registered for the program via phone once it was determined that they met the age and diagnostic requirements. Inclusion criteria include being between the ages of 5 and 10 and having a parent-reported diagnosis of DCD. Qualification for DCD was based on the fit to the diagnostic criteria defined by the DSM-5: (A) a score below the 5<sup>th</sup> percentile on the Movement Assessment Battery for Children, 2e, MABC-2; (2) experience of motor coordination difficulties that had an impact on their family function as assessed by a parental report (Developmental Coordination Disorder Questionnaire, DCD-Q); (C) elimination of another general medical condition such as cerebral palsy, hemiplegia, or muscular dystrophy (report from pediatrician/parent).

To protect participant anonymity, each child was assigned a 3-digit code to be used on pre- and post-test questionnaires rather than identifying information such as first and last name.

### 2.3 Measures

Assessments were chosen or created to detect changes in a wide range of motor competence and emotional abilities of the children. For the pre-test assessment, three questionnaires were used to determine baseline motor and psychosocial abilities for the child participants.

The Developmental Coordination Disorder Questionnaire (DCD-Q) was chosen as an assessment of guardian perception of a child's motor difficulties because it is considered to be the gold-standard for this type of evaluation in DCD. The DCD-Q consists of 15 items concerning the motor abilities of the child that can be marked on a 5-point Likert scale: 1-



not at all like your child, 2- a bit like your child, 3- moderately like your child, 4- quite a bit like your child, and 5- extremely like your child (Wilson et al., 2009). Parents were asked to answer the questions about their child relative to others in the child’s same age group. The 15 items are then grouped into three distinct factors: control during movement, fine motor and handwriting, and general coordination. An example of each of these factors can be seen in Table 2.1. Interpretation of the scores is adjusted to fit each age group and has an outcome of either an “indication of DCD”, or “probably not DCD” (Wilson et al., 2009).

Table 2.1: Developmental Coordination Disorder Questionnaire Item Samples

Item Example	DCD-Q Factors
ITEM 1: Your child throws a ball in a controlled and accurate fashion.	Fine Motor/Handwriting and General Coordination
ITEM 9: Your child uses appropriate effort or tension when printing or writing or drawing (no excessive pressure or tightness of grasp on the pencil, writing is not too heavy or dark, or too light)	Control During Movement and General Coordination
ITEM 13: Your child is quick and competent in tidying up, putting on shoes, tying shoes, dressing, etc.	Control During Movement and Fine Motor/Handwriting

The Strengths and Difficulties Questionnaire (SDQ) was chosen as an assessment also based on guardian perception for the emotional and behavioral abilities of the children, later split into psychosocial scales: emotional problems, conduct problems, hyperactivity, peer problems, and prosocial behavior (Goodman, 1997). Additionally, the SDQ measured a total difficulties score, externalizing score (consisting of conduct and hyperactivity scales), internalizing score (consisting of emotional and peer problems scales), and the impact score, which measured the degree to which previously reported psychosocial difficulties interfered with home life, friendships, classroom learning, and leisure activities.

To complete this assessment, parents rated 25 items as being either “not true”, “somewhat true”, or “certainly true” of their child (Goodman, 1997). An example of these items divided categorically can be found in Table 2.2. Once the assessment was completed, the final tally of scores assigned to each item was scaled on a four-band categorization ranging from close to average, slightly raised/lowered, high/low, and very high/low. For all scales except prosocial, a lower score was considered “close to average”. For prosocial behaviors, a higher score was considered to be “close to average” (Goodman, 1997).

Table 2.2: Strengths and Difficulties Questionnaire Item Samples

SDQ Scale	Item Example
Emotional problems Scale	ITEM 16: Nervous or clingy in new situations
Conduct problems Scale	ITEM 12: Often fights with other children
Hyperactivity Scale	ITEM 15: Easily distracted, concentration wanders
Peer problems Scale	ITEM 6: Rather solitary, tends to play alone
Prosocial Scale	ITEM 20: Often volunteers to help others

Finally, the Motor Abilities Questionnaire (MAQ) is a parental report assessment created for the purposes of this study that assesses fundamental motor skills of children between the ages of 5 and 10 years. The 6-item test includes five fundamental motor skills that are known to be challenging for individuals diagnosed with DCD: jumping, balancing on one leg, holding and writing with a pencil, throwing and catching a ball, and lacing a thread through holes. These skills were also targeted in the activities throughout each session of the intervention program. The 6<sup>th</sup> item in this assessment rates the child’s general motor ability. Each item is evaluated on a 5-point Likert scale: 1- inability to complete the movement with or without assistance; 2- difficulty completing the movement even when

helped; 3- ability to complete the movement only when given assistance; 4- ability to complete the movement without assistance on occasion but needing verbal direction or oversight; 5- ability to complete the movement consistently without assistance or direction. For the complete assessment, please see Appendix A.

The post-test assessment following the 8-week intervention program consisted of these same three questionnaires as well as a Parent Satisfaction Poll (PSP) and Child Participation Questionnaire (CPQ) to receive parent feedback.

The PSP is a parental report survey created to assess satisfaction with various aspects of the asynchronous intervention program. This poll asked parents to rate facets of their experience on a 5-point Likert scale, with 1 being not satisfied and 5 being completely satisfied. Questions ranged from the accessibility of the program videos and materials to the time, length, and pace of each session and directly compared the asynchronous program to the previous, in-person modality when applicable. These scales were created to receive specific feedback about different aspects of the intervention for future improvement.

The CPQ is a parental report survey created to gauge the specific participation and engagement from each child as well as the involvement of their guardians during the 8-week asynchronous program. The 13-item survey asked parents to choose one of five multiple-choice options that best described their child's engagement in the program, more specifically asking about the amount of parental guidance necessary for completion of the activities, time spent on activities each week, and emotional aspects of the child's experience before and during the videos.

For a complete copy of the PSP and CPQ, please refer to Appendices B and C, respectively.

## 2.4 Intervention

After guardians registered for the intervention via a registration phone call, in which characteristic and contact information was gathered, researchers sent the pre-test assessments to be completed within a two-week timeframe of the start of the intervention program. Contact with the guardians of child participants was completed primarily via email. All assessments were administered within a two-week period before (pre-test) or after (post-test) the eight sessions. These assessments were administered online via QuestionPro. Prior to the intervention, parents were given a list of all materials needed, including approximate cost and available stores.

The motor intervention program consisted of five core activities within each of the eight sessions that aligned with the five fundamental motor skills addressed in the MAQ. The child participants and their families were told to complete each video within a 7-day period of its release, prior to the release of the following asynchronous session. A total of eight sessions were provided to the participants, with links to sessions being shared privately with registered parents each Monday via email at 8:00 am CST. Each session was given a theme based on the week and was approximately 40-60 minutes in length, including an introduction and activity theme announcement for the week, an American Sign Language word of the day, warm-up, five core activities, and cool down.

On each Wednesday prior to session release, parents and guardians were sent an email reminder of the upcoming session that also included the lesson plan and required materials for that week. Parents were also informed to utilize tools such as “pause” and “rewind” as needed in order for their child to complete all activities. They were not

discouraged from helping their child, though on-screen volunteers demonstrated activities step-by-step to be the primary model of instruction for the children.

All on-screen volunteers were undergraduate students at the University of Texas at Arlington that had either experience working with children with DCD or academic coursework in kinesiology studies. All filming and editing were overseen and monitored by the two program coordinators, who created the lesson plans and aided in the scripting and planning of the activities completed on-screen. Activities were designed to be imaginative, fun, and interactive in order to encourage engagement from the children.

For several of the activities, moderations in challenge-level were demonstrated by the on-screen volunteers. Several activities included challenges for children with higher motor abilities to push themselves to complete a more complex motor task. Moderations occurred in the opposite direction, too, and alternatives were often offered for those who were unable to complete the original movements demonstrated by volunteers. An exhaustive collection of all activities completed throughout the intervention program can be seen in Table 2.3. Cool down each week was a variation of yoga.

Table 2.3: Little Mavs Online Program Activity Outline

Session and Theme	Warm-Up	Activity 1: Creative/Sensory	Activity 2: Dexterity	Activity 3: Balance/Coordination	Activity 4: Gross Motor	Activity 5: Fine Motor
1- Welcome Celebration	Simon Says	Coffee Filter Creations	Love Fish	Drawn Maze	Lift the Flap	Pom Pom sorting with tweezers/tongs
2- Health Awareness	Mirroring Activity	Hand Washing Experiment	Clothespin Matching	Toss the Germs Away	Simon Says	Buttoning Activity
3- St. Patrick's Day	Sensory Scavenger Hunt	Pot of Gold Sensory Bowl	Tissue Paper Rainbow	Rainbow Maze	Musical Dance	Threading a Clover
4- Zoo Day	Animal-Themed Stretches	Dinosaur Dig	Construction Caterpillar	Story Book Mirroring	Animal Walk	Octopus Creation
5- Food Day	Sensory Scavenger Hunt	Ice Cream in a Bag	Structure Building	Ring Toss	Pin the Ice Cream on the Cone	Lollipop Creation
6- Sports Day	Follow the Leader	Rhythmic Ribbons	Sports Tracing Sheet	Keep Up Balloon	Obstacle Course	Gold Medal Creation
7- Dream Job Day	Simon Says	Stress Ball Making	Buttoning Activity	Exercise Dice	Act it Out	Lacing/Tying Shoelaces
8- Artist Day	Sensory Scavenger Hunt	Painting with Ice Cubes	Graduation Cap Creation	Collecting "Paints"	Dance Activity	Rhythmic Ribbons

At the conclusion of the 8-week program, the post-test was administered via QuestionPro. Once again, parents were given a 2-week timeframe to complete all assessments, which included the DCD-Q, MAQ, SDQ, PSP, and CPQ.

## CHAPTER 3

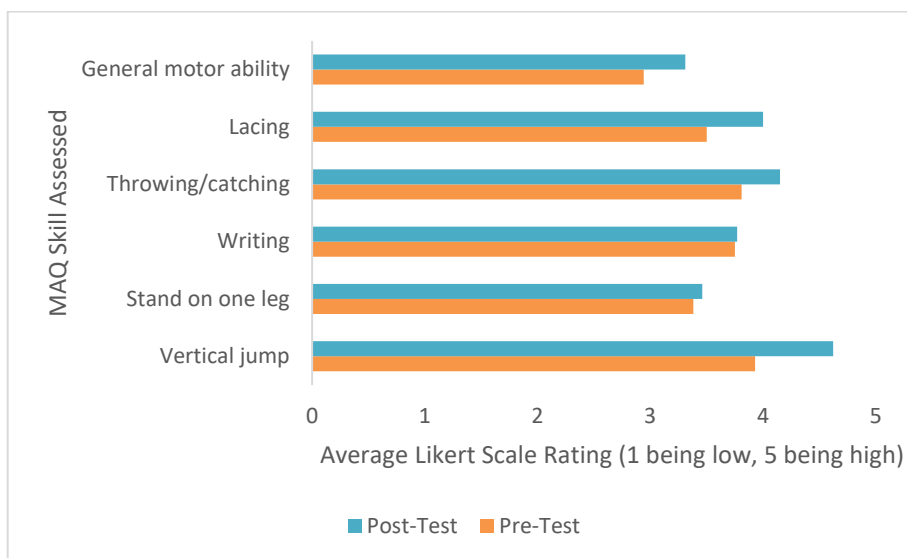
### RESULTS

Of the 13 participants, seven children (53.8%) completed the intervention program. Results from paired samples t-tests indicated no significant differences on the DCDQ, however, some promising effect sizes emerged for the MAQ and SDQ.

#### 3.1 Motor Abilities Assessments Results

Despite the fact that paired samples t-tests showed no significant improvements in any of the scores, there were large effect sizes for items on the MAQ such as jumping ( $d = .28$ ), holding a pencil ( $d = .27$ ), lacing a thread ( $d = .70$ ), and overall motor ability ( $d = .30$ ). Differences in pre- and post-test scores can be seen in Figure 3.1.

Figure 3.1: MAQ Pre- and Post-Test Values



As seen in Figure 3.1, average post-test scoring was consistently higher than average pre-test scoring; however, these differences were not seen to be statistically significant.

### 3.2 Psychosocial Abilities Assessment Results

Like the motor assessments, no significant differences were found for the emotional and behavioral abilities of children as measured by the SDQ; however, there were small effect sizes for two of the scales, including peer problems ( $d = .47$ ) and internalizing problems ( $d = .35$ ), and, as a highlight, there was a large effect size for the impact scale ( $d = 1.76$ ).



## CHAPTER 4

### DISCUSSION

When considering these findings, it is important to note that this is a preliminary study. Our goal was to determine the feasibility and effectiveness of a web-based motor intervention on the motor and psychosocial abilities of the participants in order to build a foundation for future programs, even in the post-pandemic world.

As for the feasibility of web-based motor interventions, although there were no significant changes in motor and psychosocial scores in the child participants, parent feedback on the program was largely positive. The most common piece of feedback received was regarding the children's enjoyment of the program. During the Spring of 2021, nearly all programs, activities, and academics that were once in-person were being delivered in a similarly online format. In addition, 70.6% of the originally registered children also participated in at least one other type of motor intervention, including occupational therapy, physical therapy, and speech therapy. Many of these children participated in more than one supplemental therapy types, and of those children, a vast majority of them were completing these activities online alongside their normal schoolwork and classes. This may have led to burn-out of online commitments, leading to a low program retention rate. It was encouraging to know, however, that for the children who did participate in the program, the intervention felt less like a chore than other online commitments, indicating a high level of engagement and motivation to complete the activities.

Additionally, the asynchronous modality of the intervention program allowed children from different states and time zones to participate, which had not been possible in the previously in-person program. Feedback from parents also suggested that the flexibility provided for scheduling asynchronous programs made completing the sessions more feasible.

However, the asynchronous format also had its limitations. Without a regularly scheduled meeting time, accountability for watch time and participation was difficult to gauge and control. Unfortunately, the previous group formatting of the in-person intervention was not able to be transferred to an online setting at this time, and without instant feedback, some children required more parental oversight than was ideal. Some parents who did not complete the program reported that their child needed too much parental guidance for the asynchronous program to be feasible for their families, especially for those who were also working from home during this time. Although the program may not have been structurally feasible to every family, the fact that it is available to the public for free on YouTube may help increase accessibility to children who are unable to attend other motor therapies, even in the post-COVID world, to provide more motor training for children.

Although within this sample size, the motor and psychosocial abilities did not improve significantly, the program did seem to have an impact on how the potential difficulties faced upset the child, interfered with everyday life, and placed a burden on the family, as seen in the large effect size for the SDQ Impact Score. These results support the notion that a web-based motor intervention may be effective in supporting the motor and

psychosocial abilities of children; however, a larger sample size and a control group are warranted for further determination of significance.

APPENDIX A  
MOTOR ABILITIES QUESTIONNAIRE (MAQ)

## Motor Abilities Questionnaire

Scale:

- a. My child is unable to complete this movement with or without assistance.
- b. My child struggles to complete this movement even when helped.
- c. My child is only able to complete this movement when given assistance.
- d. My child is sometimes able to complete this movement without assistance but may need direction or oversight at times.
- e. My child can complete this movement consistently without assistance or direction.

Please rate your child's ability to jump up and down without losing balance.

- a. My child is unable to complete this movement with or without assistance.
- b. My child struggles to complete this movement even when helped.
- c. My child is only able to complete this movement when given assistance.
- d. My child is sometimes able to complete this movement without assistance but may need direction or oversight at times.
- e. My child can complete this movement consistently without assistance or direction.

Comments:

Please rate your child's ability to stand on one leg for 10 seconds or more without falling.

- a. My child is unable to complete this movement with or without assistance.
- b. My child struggles to complete this movement even when helped.
- c. My child is only able to complete this movement when given assistance.
- d. My child is sometimes able to complete this movement without assistance but may need direction or oversight at times.
- e. My child can complete this movement consistently without assistance or direction.

Comments:

Please rate your child's ability to hold a pencil correctly and write at a level that is appropriate for their age group.

- a. My child is unable to complete this movement with or without assistance.
- b. My child struggles to complete this movement even when helped.
- c. My child is only able to complete this movement when given assistance.
- d. My child is sometimes able to complete this movement without assistance but may need direction or oversight at times.
- e. My child can complete this movement consistently without assistance or direction.

Comments:

Please rate your child's ability to throw or catch a ball.

- a. My child is unable to complete this movement with or without assistance.
- b. My child struggles to complete this movement even when helped.
- c. My child is only able to complete this movement when given assistance.
- d. My child is sometimes able to complete this movement without assistance but may need direction or oversight at times.
- e. My child can complete this movement consistently without assistance or direction.

Comments:

Please rate your child's ability to lace a thread or string through holes, such as when lacing up a shoelace.

- a. My child is unable to complete this movement with or without assistance.
- b. My child struggles to complete this movement even when helped.
- c. My child is only able to complete this movement when given assistance.
- d. My child is sometimes able to complete this movement without assistance but may need direction or oversight at times.
- e. My child can complete this movement consistently without assistance or direction.

Comments:

Please choose what best represents your child's overall motor ability:

- a. My child struggles with completing everyday tasks due to their motor skill level and needs constant assistance and supervision.
- b. My child struggles to complete everyday tasks due to their motor skill level and needs some assistance throughout the day.
- c. My child struggles with some everyday tasks but can be independent with others.
- d. My child can complete everyday tasks but may be behind their cohorts in skills such as writing and coordination or may be clumsier than others who are their age.
- e. My child is occasionally clumsy, but their overall motor skills are well-developed when compared to others who are their age.
- f. Other

Explain/Comments:

APPENDIX B  
PARENT SATISFACTION POLL (PSP)

Please rate your satisfaction in the following attributes of the Little Mavs Online Program:

	1 – Not satisfied at all	2 – Somewhat dissatisfied	3 – Neutral – neither satisfied nor dissatisfied	4 – Somewhat satisfied	5 – Completely Satisfied	N/A	Comments
The time it took each week to complete the activities							
The accessibility of the videos on YouTube							
The length of each individual activity							
The pace of each video, in terms of how many activities were completed per week							
The pre-recorded modality of the program as opposed to a live video format.							
The ease of getting the materials used throughout the program							
Overall satisfaction of the program when compared to the previous in-person program							
Overall satisfaction of the program							



Would you and your child be more likely to complete a live program with the other children and volunteers? (yes or no) Please explain your answer.

How likely are you to recommend this program to someone who has a child who fits the criteria for participation in Little Mavs programs?

- a. Not at all likely
- b. Somewhat unlikely
- c. Neutral
- d. Somewhat likely
- e. Highly likely

Please provide all additional feedback and comments about this program below.

APPENDIX C  
CHILD PARTICIPATION QUESTIONNAIRE (CPQ)

## Child Participation Questionnaire

Please choose what best represents your child's ability to complete the weekly activities without parental guidance.

- f. My child is unable to complete any of the activities without parental oversight.
- g. My child requires parental oversight for most of the activities.
- h. My child needs parental oversight for roughly half of the activities.
- i. My child can work independently, without parental oversight, for most of the activities.
- j. My child was able to complete every activity without parental oversight.

Explain/Comments:

On average, what amount of the weekly videos did your child complete?

- a. My child completed less than one full activity per week, including warm-up and cool-down.
- b. My child completed one to two full activities per week, including warm-up and cool-down.
- c. My child completed three to four full activities per week, including warm-up and cool-down.
- d. My child completed all but one of the activities per week, including warm-up and cool-down.
- e. My child completed every activity each week, including warm-up and cool-down.

Explain/Comments:

How often did your child use the *more* challenging alternative versions of the activities to tailor the video to their skill level?

- a. My child never used the more challenging alternative activities or needed to modify the activities to be easier for their skill level.
- b. My child used the more challenging alternative activities once or twice throughout the entirety of the program.
- c. My child used the more challenging alternative activities a few times throughout the course of the program.
- d. My child used the more challenging alternative activities regularly throughout the course of the program.
- e. My child used the more challenging alternative activities every time they were offered.

Explain/Comments:

On average, how much time did it take for your child to complete a session or video, including pausing the video or setting up an activity?

- a. Less than one hour
- b. Approximately 1 hour
- c. Approximately 2-3 hours
- d. More than 4 hours
- e. Other

Over what span of time did your child complete the weekly videos?

- a. In one sitting
- b. Over the course of multiple days
- c. Over the course of one day, while taking small breaks in between activities
- d. Other, please explain

Over the course of the program, was your child able to complete the activities in shorter amounts of time? In other words, did it take less time for your child to complete the videos near the end of the program than it did at the beginning of the program?

- a. Yes, my child was able to complete the activities faster near the end of the program
- b. No, the activities took the same amount of time in the beginning as they did in the end
- c. No, I did not see a noticeable difference
- d. No, the activities took my child longer to complete at the end than they did at the beginning
- e. Other

What types of activities did your child engage in the most or seem the most excited about? (you can choose more than one option)

- a. Warm-up activities
- b. ASL Word of the day
- c. Activities involving large movements
- d. Activities involving artistic skills
- e. Activities in which the child worked primarily with their hands
- f. Experiment-like activities
- g. Cool down activities
- i. Other, please explain

How challenging were the activities in this program for your child?

- a. None of the activities were challenging enough for my child.
- b. Most activities were not challenging enough, but some were.
- c. There was an even spread of challenging activities and activities that were below the skill level of my child.
- d. Most of the activities were at a high difficulty level for my child, but some were not challenging enough.
- e. All the activities were at a high difficulty level for my child.

Please rank the difficulty of the overall program for your child.

- a. This program was easy for my child to complete and did not push their abilities.
- b. This program was not difficult for my child and took minimal effort for my child to complete.
- c. This program was at an appropriate level of difficulty for my child and pushed them to improve without causing unnecessary stress.
- d. This program was difficult for my child at times and took a lot of effort and focus to complete.
- e. This program was above the skill level of my child and was exceedingly difficult or impossible for them to complete.

How much would you say your child looked forward to completing the videos each week?

- a. My child did not look forward to completing a video
- b. My child only looks forward to completing a video a little bit
- c. My child was neutral in their eagerness to complete a video
- d. My child mostly looked forward to completing a video
- e. My child was always looking forward to completing a video
- f. Other

How often did your child get excited when completing the videos?

- a. My child was not excited to complete any videos.
- b. My child had little excitement about completing a video.
- c. My child was neutral about completing a video.
- d. My child was mostly excited to complete a video.
- e. My child was always excited to complete a video.
- f. Other

How often did your child get frustrated during the sessions?

- a. My child did not exhibit frustration at any point during the videos.
- b. My child exhibited frustration once or twice throughout the entire program.
- c. My child exhibited frustration occasionally when completing the more difficult or tedious activities.
- d. My child often exhibited frustration over the course of the program.
- e. My child exhibited frustration at least once per weekly video and was often frustrated with the activities.
- f. Other

Did you see an increase in the confidence of your child to perform motor skills that they previously struggled with? (yes or no) Please Explain

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## BIOGRAPHICAL INFORMATION

Karyssa Nelson is a graduating from the University of Texas at Arlington (UTA) with an Honors Bachelor of Science in Psychology and a minor in Biology and a Certificate in the Medical Humanities. After graduating from UTA in December 2021, she plans to take a year of growth and development as she applies to medical schools in the United States with the ultimate goal of becoming a physician. She hopes to continue pursuing research during this time, ideally within the population of children she has been working with as they bring her joy and purpose. During her time at UTA, Karyssa became a published editor, author, and co-founder of Volume I of the academic journal, *Stimulus: A Medical Humanities Journal*, and furthered her Medical Humanities learning by becoming the president and co-founder of the student organization, Mavericks for Medical Humanities, to promote the importance of empathy and compassion in healthcare. She also volunteered and helped plan and execute Little Mavs Movement Academy during transitional periods between online and in-person learning. During this time, she participated in the Undergraduate Research Opportunity Program within the Office of Undergraduate Research at UTA. Upon graduation, Karyssa earned the Maverick Advantage Distinction as well as graduating Magna Cum Laude. She hopes to continue learning and pursuing her passions in the years to come.