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DEVELOPMENT OF A SCHOOL BASED PROGRAM: IMPLEMENTING OCCUPATIONAL THERAPY INTO GENERAL EDUCATION CLASSROOMS

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DEVELOPMENT OF A SCHOOL BASED PROGRAM: IMPLEMENTING
OCCUPATIONAL THERAPY INTO GENERAL EDUCATION CLASSROOMS

by

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A Scholarly Project

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This scholarly project, submitted by Samantha Jo Larson, in partial fulfillment of the requirement for the Degree of Occupational Therapy Doctorate from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

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Anne Haskins, PhD, OTR/L

4.12. 2023
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Date

<div align="center">PERMISSION</div>

Title: Development of a School-Based Program: Implementing Occupational Therapy into General Education Classrooms

Department: Occupational Therapy

Degree: Occupational Therapy Doctorate

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Samantha Jo Larson, OTS

4/12/23

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ABSTRACT

Purpose

The purpose of this scholarly project (SP) was to build a program containing activities for kindergarten and first grade general education classrooms that promote childrens' skills that are necessary for development in handwriting, reading, writing, spelling, and clothing management.

Background

In a technological advancing society, accessibility to tablets, screens and iPads has become easier than ever (Dadson et al., 2020; Fogo et al., 2020; Sheedy et al., 2021). The increase of technology (iPads, tablets, laptops) use in both the home and school environments have decreased the amount of hands-on manipulation tasks that children need to build and strengthen fine motor movements (Fogo et al., 2020). Subsequently, there is a trend that shows children do not have the fine motor skills needed to complete many activities of daily living (ADL) tasks and/or school related tasks independently (Caramia et al., 2020; Dadson et al., 2020). Specifically, young children are experiencing difficulties developing handwriting skills and other school related skills like zipping coats for recess time, buttoning pants during bathroom breaks, using scissors and tying shoes (Caramia et al., 2020).

Methods

Evidence from the preliminary needs assessment found within the literature review concluded that there had been an increase in the amount of time students are using technology over the last decade and that it is negatively affecting their fine motor, visual perception, and overall upper body coordination development (Caramia et al, 2020; Dadson et al., 2020; Fogo et al., 2020; Sheedy et al., 2021). Formative needs assessment, conducted on-site through informal interviews and discussions with field experts, corresponded with evidence found in the

preliminary needs assessment. A program was developed and implemented with the site's

population and a product was developed for school staff and students to use following the

conclusion of the program. The guiding model for this scholarly project was the Ecology of

Human Performance (EHP) because of its multi-disciplinary friendly terminology and focusing

on increasing the performance range of the students using the product (Dunn, 2017).

Results

Outcomes of the doctoral experiential placement (DEP) and scholarly project (SP)

resulted in 22 ready to use activities that encourage development in fine motor strength, bilateral

coordination, and visual perception skills. Activities are accompanied by an instructional manual

on how to use each activity, an activity check-out list for the site and a brief introduction to

occupational therapy (OT) and the benefits OT-based activities can have towards students in

school.

Keywords: Fine motor, bilateral coordination, visual perception, occupational therapy,
elementary students, general education classrooms.

Chapter I

Introduction

Access to technology today has become easier than ever, especially for grade school (kindergarten-5th) aged children (Dadson et al., 2020; Fogo et al., 2020; Sheedy et al., 2021). The increase of technology (iPads, tablets, laptops) use in both the students' home and school environment has decreased the amount of time that children spend practicing hands-on manipulation tasks that they need to build fine motor movements (Fogo et al., 2020). Fine motor movements are those that involve the small muscles of the hands to pinch, grasp, and work with small, precise objects (Chaves-Gnecco & Feldman, 2023). Subsequently, there is a trend that shows children do not have the fine motor skills needed to complete many activities of daily living (ADL) tasks independently (Caramia et al., 2020; Dadson et al., 2020). Specifically, young children are experiencing difficulties in the classroom developing handwriting skills due to decreased time spent doing manipulation tasks in everyday life (Caramia et al., 2020). Difficulties do not stop with handwriting and completing academic material, but performance in future career paths that require fine motor strength and coordination (i.e., surgeon or musician), could be negatively affected as well when an individual has limited ability to use their hands effectively (Altenmüller & Ioannou, 2016; Papaspyros et al., 2015).

Handwriting difficulties and fine motor strengthening needs have been the main reasons for increased referrals to school based occupational therapists (Caramia et al.,2020). Fine motor skills in school systems are not limited to only handwriting; other school related activities that require fine motor manipulation and bilateral coordination include manipulating coat zippers for recess time, buttoning pants during bathroom breaks, using scissors and tying shoes (Caramia et al., 2020). Visual perception should also be considered along with fine motor skills as they work

together to perform handwriting, clothing management and other everyday tasks independently (Lin, 2019). Visual perception skills are the brain and visual system working together to understand what is being seen and how the body can interact with its surroundings (Cahill & Bazyk, 2020). Literature evidence has shown that school aged children who participate in hands-on fine motor focused play show greater ability to perform school related activities such as handwriting and shoe tying compared to children who spent the same amount of time on a tablet for play (Dadson et al., 2020; Sheedy et al., 2021).

Purpose Statement

The purpose of this scholarly project (SP) was to build a program to provide kindergarten and first grade general education classrooms activities that work on skills necessary for development in handwriting, reading, writing, spelling and clothing management. This project was created for and in collaboration with a Minnesota-based elementary school, its school staff and a school based occupational therapist. Part of the scholarly project development was informed by a 14-week onsite experience known as a doctoral experiential placement (DEP).

Project Objectives

The main objective for this scholarly project was to bring occupational therapy (OT) into a context that does not normally use it. Having an interest working in schools, I wanted to provide all students an opportunity to experience OT rather than only special education students, who traditionally receive school-based occupational therapy (SBOT) during their school day (Cahill & Bazyk, 2020). Within a school system, when all students are being targeted for a goal, it is considered a Tier 1 approach (Cahill & Bazyk, 2020). Tier 1 approaches are used as preventative measures, meaning they help to prevent harmful, unhealthy, or incorrect skills from developing within a large group of students (Cahill & Bazyk, 2020). The next Tier, Tier 2, is

used with at-risk students who are struggling with certain areas in school and usually work in small groups for intervention (Cahill & Bazyk, 2020).

During the preliminary needs assessment, evidence showed there can be cascading effects in students' development and academic achievements if they do not develop necessary motor, coordination, and visual perception skills at the appropriate age (Lin, 2017; Sheedy et al., 2021). Discussions with a school based occupational therapist, who was an expert in the field, provided corresponding evidence that many students do not meet their educational milestones and would benefit from a tailored program to give them additional skill development opportunities during their school day.

During the scholarly project development process and onsite DEP, the main objective was to build and promote the use of hands-on manipulation activities for general education students within their natural context of the classroom. I worked directly with students and their teachers in large groups, made up of entire first grade classrooms, considered the Tier 1 approach (Cahill & Bazyk, 2020). A Tier 2 approach was also taken, consisting of working with four small groups of kindergarten students outside of their classroom to target skills with which they have been struggling (Cahill & Bazyk, 2020). The activities were used throughout the DEP to share with teachers and school staff additional ways to incorporate hands-on learning in their classroom to further develop students' fine motor coordination, hand strength and visual perception skills.

Questions that guided program development were: How are elementary students' motor skills affected by technology use? What are teachers' perspectives on their students' school performance given advancement of technology and the amount of time technology is used? Are there intervention programs available in elementary schools that target fine motor, manipulation

and coordination skills? These questions were used to guide a literature search prior to beginning on site as well as guide informal interviews with general education teachers during initial meetings.

Theoretical Frameworks

The guiding model for this scholarly project was the Ecology of Human Performance (EHP). There are three main components included in the EHP model which are *person*, *tasks* and *context*; all create a performance outcome called the *performance range* (Dunn, 2017). *Person* is defined as the individual(s), *tasks* are the activities completed by the person and *context* is the environment surrounding the person (Dunn, 2017). The model focuses on the context and/or surroundings of a person rather than attempting to change the person directly (Dunn, 2017). For this scholarly project and DEP, the EHP model was implemented by providing general education students with occupational therapy-based activities within their natural contexts, natural contexts being their classrooms (Dunn, 2017). The EHP model was also appropriate when working with a multidisciplinary school- based team because of its general terminology. For example, rather than using the often mis-interpreted term, "occupation," the EHP model uses, "task," instead to describe the activities in which a person is engaging (Dunn, 2017).

Andragogy and Pedagogy learning theories were both used throughout the DEP and incorporated into program development to build programming for both the adult and student population (Bastable et al., 2020). It was important to understand the learning preferences of the two populations, teachers compared to students, because they each are motivated to learn in different ways. Teachers and school staff, as adult learners, are motivated when what they are learning can become a solution to problems they are experiencing (Bastable et al., 2020).

Students, on the other hand, are motivated to learn from curiosity about their environment and from their developing bodies (Bastable et al., 2020).

Core Terms of Scholarly Project

Tier I: School based intervention as a preventative measure and to create most optimal learning outcomes for the entire population of students (Cahill & Bazyk, 2020).

Tier II: School based intervention given to selected groups of students to reduce learning difficulties as soon as they are identified (Cahill & Bazyk, 2020).

Ecological Model of Human Performance (EHP): An occupational therapy-based model focused on the context and/or surroundings of a person rather than attempting to change the person directly. EHP consists of three main components; *person*, *tasks* and *context*; all create a performance outcome called the *performance range* (Dunn, 2017).

Fine Motor: Movements of the small muscles in the body. Typically involves muscles found in the hands and fingers (Strooband et al., 2020).

Manipulation: Ability to move objects in the hand using only the thumb, fingers and palm of the hand (Strooband et al., 2020).

Visual Perception: The brain and visual system working together to understand what is being seen and how the body can interact with its surroundings (Cahill & Bazyk, 2020).

Bilateral Coordination: Ability to coordinate both sides of the body at the same time in a controlled and organized manner (Strooband et al., 2020).

Significance Program Development

This DEP and SP were significant to the site's population because it provided students with hands-on manipulation activities to use in and outside of the classroom during their normal school day. Technology use is not bad, in fact, it is necessary to know how to use it in a

technological advancing society (Robinson, 2022). However, there needs to be a balance

between learning how to use the latest technology and how to use your hands to complete tasks

successfully (Neumann & Neumann, 2015; Robinson, 2022). It is beneficial for students to reach

optimal development in their fine motor, bilateral coordination, hand strength and visual

perception skills to better prepare for future academic instruction and to build a strong

foundation for a future career (Lin, 2017; Sheedy et al., 2021).

   Chapter I consisted of introducing the scholarly project and DEP, providing evidence for

why I chose to work with the general student population and how the EHP model guided product

development. Chapter II consists of a literature review, including a more in-depth view of

evidence found in literature and how it supports the need for the development of this scholarly

project.

Chapter II

Literature Review

Technology has been changing the way society functions since its inception, altering how humans interact with their environment and with each other (Fogo et al., 2020). Technology itself has also changed substantially over the course of the last decade (Dadson et al., 2020; Fogo et al., 2020; Sheedy et al., 2021). Significant changes in technology include the use of iPhones rather than simple landline telephones, artificial intelligence advancements like Siri, or increased presence of laptops for personal use rather than monitors (Mississippi College, 2017). The technology changes have become so accessible, even public elementary schools, which often face budgetary restrictions, have begun to adopt the use of technology in general classrooms through chrome books, tablets and iPads (Cahill & Bazyk, 2020; Fogo et al., 2020).

General elementary classrooms are typically made up of about 15-22 students with one teacher (Swinth, 2019). Ages of students found within public elementary schools vary between five to eleven years old; five years old for most entering Kindergarten and eleven years old for most fifth graders at the end of the school year (Swinth, 2019). Found within general classrooms are desks, a variety of different seating/chair options (depending on the classroom/teacher preferences), visual posters and various technological items for learning and teaching (Swinth, 2019). As part of today's updated academic rigor, students are expected to learn current technology and keep up with its growth through teacher direction (Cahill & Bazyk, 2020). Technology that is most common in general public-school classrooms today include touch screen tablets, Chromebooks, smart boards and projectors (Mississippi College, 2017). Teachers utilize smart boards and projectors to allow students better visuals for learning and also to enhance direct instruction rather than having their backs towards students while writing on white boards

(Mississippi College, 2017). There are a multitude of ways that these technological devices are provided to students as well. One option school districts use is assignment of a Chromebook/tablet to each student for the entire school year for independent use (Mississippi College, 2017). Other options include having a station in the classroom where students can check a Chromebook/tablet out to use during the day and return before going home or have a mini lab where larger, stationary monitor computers are available throughout the school day (Mississippi College, 2017).

Benefits of technology use in general elementary classrooms include providing students an alternative way to learn, improve social networking, foster imagination, and prepare students for advancing their technological skills for future use (Neumann & Neumann, 2015; Robinson, 2022; Saini & Goel, 2020). Although there are many benefits to incorporating technology into classrooms, there are also numerous problems. Problems with technology use in the classroom include challenges with teachers' knowledge on how to use latest technology, student distractions during direct instruction, ensuring students are safe in an online environment and finding an appropriate balance between learning with technology versus without for age-appropriate motor development (Dadson et al., 2020; Neumann & Neumann, 2015; Robinson, 2022; Sheedy et al., 2021).

The purpose of the literature review is to identify areas of concern found in elementary students' educational development from a motor engagement perspective while in a technological advancing society. The literature review also includes ways occupational therapy (OT) practitioners can work inter-professionally and support individuals in school disciplines like teachers, paraprofessionals, and other professionals in maximizing their students' skills related to school performance.

Theoretical Model

Theoretical models can be useful in organizing ideas about complex systems and the ways that humans perform. The Ecology of Human Performance (EHP) model created by Winnie Dunn (2017) focuses on the context and/or surroundings of a person rather than attempting to change the person directly. The context is what changes to improve an individual's independence level (Dunn, 2017). The EHP model was designed to be used inter-professionally, using vocabulary such as, "tasks" rather than occupations to create a more universal understanding among various disciplines. Given the public-school setting, there are a variety of professionals that work together and adopt the language of other disciplines (Kielche, 2021; Seruya & Garfinkel, 2020). Utilizing a model that promotes interdisciplinary teamwork can create the best outcome towards maximizing a students' independence in their school context. There are three main components included in the EHP model which are *person*, *tasks* and *context*; all create a performance outcome called the *performance range* (Dunn, 2017). The performance range is considered the number of tasks a person is able to do independently in their context (Dunn, 2017).

Person

Person is considered an individual who is interacting within the environment and brings a unique set of variables including past experiences, values, and interests (Dunn, 2017). The person is also recognized for their sensorimotor, cognitive, and psychosocial abilities (Dunn, 2017).

Tasks

Tasks are the activities available to the person within the context (Dunn, 2017). Examples of tasks could be taking a shower, walking the dog, playing a sport etc. In a public-school

context, tasks may include cutting paper, handwriting, tying shoes, folding pieces of paper, completing homework, etc. (Schneck & O'Brien, 2020). School related tasks incorporate physical learning or, "hands on," learning as it will be mentioned throughout the literature review. Hands-on learning style is characterized by using the body and its senses, mostly tactile, to understand the environment and learn from it (Taverna et al., 2020). This style of learning can also include learning from physical movements and using physical objects during learning activities (Taverna et al., 2020).

Context

Context is the environment surrounding the person. The context can be broken down into cultural, social, physical and temporal (Dunn, 2017). *Cultural context* is the ethnic, religious or other organizational group that contributes to the identity or rules of behavior an individual follows (Dunn, 2017). An example of cultural context could include engaging in a religious practice like praying during the Ramadan season or being among others who speak a different language (Dunn, 2017). *Social context* includes an individual's family, friends, governments, clubs or other groups where one engages with others (Dunn, 2017). *Physical context* is the natural and/or man-made environments found within one's context, like furniture, hills, stairs, etc. (Dunn, 2017). Lastly, the *temporal context* includes the chronological age, developmental stage and health status of an individual during a time in their life (Dunn, 2017).

Performance Range

Performance range is considered the number of tasks a person is able to complete within their context (Dunn, 2017). A wider performance range means that the person is able to complete more tasks independently within their context; smaller performance range means less tasks are able to be completed (Dunn, 2017).

Person

People who are involved in the public elementary school context everyday include students, their families, teachers, teachers' aides and all other interdisciplinary school professionals (principals, custodians, food preparation staff, administrative assistants, etc.); all working together to foster an educational environment for the up-and-coming generation (Kielche, 2021; Seruya & Garfinkel, 2020). Teachers and other public-school professionals provide students with resources to receive a public-school education and informally learn other skills related to socialization and culturally appropriate behaviors (Ingersoll et al., 2018). Recently, OT practitioners have created a presence in the public-school systems to incorporate resources for students and teachers on how to increase success in school related performance (Cahill & Bazyk, 2020). Each type of person has a different background and responsibility when engaging in the public school system.

Students

Students are the focal point of this literature review as they are the intended recipients for the program development in this scholarly project. To begin, it was important to understand where they are expected to be developmentally in the skill areas of handwriting, fine motor and bilateral manipulation skills based on their age/grade. By the age of five or six years old, a child is expected to hold a writing utensil correctly, using a three-finger grasp (Myott et al., 2016). Kindergartners are expected to begin and continue developing their hand manipulation skills to prepare them for 1st grade writing instruction (Lin et al., 2017; Sheedy et al., 2021). By age seven years old, all types of hand manipulation (like repositioning or rotating an object in the hand without dropping it) should be present but not fully developed (Myott et al., 2016). A student who has not been able to develop hand manipulation, fine motor or bilateral coordination

skills will not only have challenges with handwriting but also other school related tasks such as

scissor use, buttoning their jacket for recess, shoe tying, etc. (Caramia et al., 2020).

Students in elementary school are being introduced to basic technology, such as keyboard

typing, at approximately the age of four years old according to Myott et al. (2016). At this same

age, students are still developing the motor coordination and fine motor skills required to write

legibly and have not yet mastered handwriting (Myott et al., 2016). When students are

simultaneously learning both handwriting and keyboard typing skills, it is important that time

spent between these two skills is balanced. Balance meaning that the time spent between hands-

on and technological learning is appropriate for the age group of students (Neumann &

Neumann, 2015; Robinson, 2022). At kindergarten level, it is recommended that students spend

more time with hands-on learning than with technological strategies so they can develop the

necessary fine motor and coordination skills while their hand development is still malleable (Lin

et al., 2017). Between third and fifth grade, students begin to spend more of their time learning

with technological strategies since their handwriting and fine motor skills are more developed

and mastered (Lin et al., 2017). An increased amount of time spent on screens negatively affects

a child's fine motor skills development, which then leads to difficulties completing occupational

tasks at home and in school (Dadson et al., 2020).

Hopkinson (2017) surveyed 1,454 parents of young children to discover the amount of

time their children spend on a screen and how it is being delivered to them (i.e., tablet, television,

computers). Results show that children eight years old and younger are spending an average of

two hours and 19 minutes per day on a technological device in the year of 2017 (Hopkinson,

2017). There has been an increase in the number of young children who are receiving their own

personal tablets from 7% of households in 2013 to 42% in 2017 (Hopkinson, 2017). Whether the

children were using the tablets for school programs or leisure was unspecified, it is still time not used for hands-on activity and play. Because children are becoming more exposed to technology use and its easy accessibility, they are not given the same opportunities to develop fine motor and hand manipulation skills compared to children their same age a decade ago when today's technology was not as available (Caramia et al., 2020; Sheedy et al., 2021).

Teachers and Teachers Aides

Teachers and teaching aides (TAs) spend the most time working with students and understand the best way students learn which makes it imperative that they are consulted in all programming that is developed by other stakeholders (such as OT practitioners, physical therapists, etc.) (Kielche, 2021). Considering teachers and TAs spend the most time with students, they can offer school based occupational therapists (SBOT) a more well-rounded image of the student and their current educational performance (Ingersoll et al., 2018).

Teachers and TAs play an important role in the students' educational experiences. Responsibilities of a general classroom teacher consist of providing knowledge to students that follows curriculum, role modeling appropriate behaviors and helping students lead successful academic futures (Ingersoll et al., 2018). More specific tasks completed by general classroom teachers include communicating with parents, meeting one on one with students and maintaining an inclusive classroom environment (Ingersoll et al., 2018). Teachers also work within an interdisciplinary team consisting of other teachers, TAs and supportive school staff like counselors, principals and when applicable, SBOT (Ingersoll et al., 2018).

A TA is responsible for managing records, materials, and equipment; attending to the physical needs of students and supporting instructional tasks when supervised by a certified teacher (Kielche, 2021). They work heavily one on one with at-risk students for reading, writing,

spelling and other areas of difficulty outside of the general classroom (Kielche, 2021). At-risk students are children involved in the educational system who are prone to falling behind academically due to a disability, cultural factors or other personal reasons (Kielche, 2021).

Tasks

Elementary school students' tasks related to learning include handwriting, pen to paper activities, smart board/computer use, scissor use, purposeful play, reading and transition time in between tasks (Caramia et al., 2020; Fogo et al., 2020). Many of the activities completed within the general classroom require hand manipulation and fine motor skills such as grasping a pencil correctly or folding small pieces of paper (Caramia et al., 2020). Fogo et al. (2020) asserted that elementary students today are not engaging in as many fine motor activities when compared to elementary students in 2003. A large reason for the decrease in fine motor activities in general classrooms is the change in educational standards given to teachers to incorporate more technological based learning (Fogo et al., 2020). There has been a higher presence of iPads, tablets and computerized learning found within the school context (Fogo et al., 2020). Many schools have begun to provide each student with their own tablet or laptop to use towards their learning (Mississippi College, 2017).

There are both benefits and concerns with tablet use found in elementary aged students. Benefits of tablet use is that it is an alternative learning strategy for literacy and writing skills as well as interactive actions (Neumann & Neumann, 2015). However, concerns include students not being able to fully engage in activities that target hand manipulation skills that are imperative towards students' educational and fine motor development (Caramia et al., 2020; Dadson et al., 2020; Fogo et al., 2020; Neumann & Neumann, 2015). Evidence indicates that there may be a link between increase in technological use in general classrooms/at home and difficulty found in

elementary aged students with handwriting/hand manipulation tasks (Dadson et al., 2020; Sheedy et al., 2021). It is important to target fine motor skills early on in elementary school, perhaps kindergarten through 1st grade, because handwriting helps with future reading and spelling development (Sheedy et al., 2021). Lin et al. (2017) described the importance of beginning manipulation-based activities with students in kindergarten through second grade, as these are the years children's hand muscles are most malleable. When school related tasks like handwriting, scissor use or shoe tying are difficult, the performance range of the student decreases, limiting what they are able to do independently (Dunn, 2017).

Proficiency in fine motor and manipulation skills are not only beneficial in the school setting, but can also show positive results for the students while at home (Caramia et al. 2020). Developing fine motor skills, hand manipulation and bilateral coordination can assist in toileting, dressing and preparing food (Caramia et al., 2020). Gaining independence in these activities of daily living (ADL) areas enhances the self-esteem in a student while also alleviating the parents of small tasks such as shoe tying, unbuttoning pants for toileting or opening food packaging for their young children (Chaves-Gnecco & Feldman, 2023).

Context

Each general classroom context is different. Depending on the teacher's preferred teaching style or class size, the environment a student learns in can differ every year to every day. Ansari and Purtell (2017) reviewed a study in which researchers collected data from 18,170 kindergarten students from 970 schools as well as parents, general teachers and caregivers. The purpose of the study was to understand how teachers conduct class in their kindergarten classrooms and the effectiveness of different teaching strategies. Results showed that kindergartners spent the majority of their day, about 34%, in teacher-directed whole group

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activity (Ansari & Purtell, 2017). Teacher-directed small group activities closely followed being 23% of the school day and 14% of the day spent on individualized teaching (Ansari & Purtell, 2017). Although large group teacher directed learning earned gains in literacy and math, small group learning allowed teachers more opportunity to identify specialized needs found within each student and tends to be more engaging for the child (Ansari & Purtell, 2017). It was found that use of multiple different types of learning (such as small group and individualized learning) was best for student learning (Ansar & Purtell, 2017).

Technology that has been introduced to general elementary classrooms include tablets, laptops and smartboards (Caramia et al., 2020; Fogo et al., 2020; Mississippi College, 2017; Neumann & Neumann, 2015). Technology in elementary classrooms is used for practicing spelling, creating stories, providing vivid visuals for learning and overall fostering a students' curiosity and imagination (Neumann & Neumann, 2015; Saini & Goel, 2020). Although having this technology in an elementary classroom can make learning more exciting, having this access can take time away from hands-on learning and manipulation tasks for the students (Caramia et al., 2020; Dadson et al., 2020; Fogo et al., 2020). The reduced hands-on learning time in the classroom is compounded when there is time spent at home on technology for leisure purposes (i.e., gaming apps, movies, YouTube videos) that adds to the limited exposure to fine motor and manipulation activities elementary school students receive (Hopkinson, 2017).

Occupational Therapy's Role in Schools

Many people are not familiar with the role of OT in the medical world, and far more people are unaware of its presence in schools. OT helps individuals to become more independent in their daily tasks by assisting the individual to develop or relearn skills (AOTA, 2020). This can include dressing, food preparation, hygiene, driving; everything that a person may need to

complete during his or her typical day (AOTA, 2020). In a public-school context, elementary students' typical day may consist of handwriting, cutting paper, socializing with classmates, sitting at a desk, reading; all of which can be worked on with OT to help the student thrive educationally (Cahill & Bazyk, 2020; Caramia et al., 2020). SBOT may work with the general student population to prevent functional and/or academic delays by catching performance difficulties early, known as a Tier 1 approach (Cahill & Bazyk, 2020). SBOT can work with Tier 2 or 3 students who require more intense interventions (Cahill & Bazyk, 2020). Tier 2 would consist of working with a small group of students who all present with similar performance challenges (Cahill & Bazyk, 2020). If a student is not responding to Tier 2 support, they will then receive more individualized interventions in Tier 3 to target their areas of difficulty (Cahill & Bazyk, 2020).

Typical responsibilities of a SBOT include but are not limited to direct student interaction, documentation, scheduling, evaluations, report writing and interdisciplinary collaboration (Seryua & Garfunkel, 2020). A SBOT is responsible for working on social skills, academic skills, behavior management, sensory integration, and motor skills with referred students (Cahill & Bazyk, 2020; Kielche, 2021). SBOTs should not see themselves as experts but rather collaborators who work with individuals in other disciplines, like teachers, TAs and guardians to gain a more rounded view of a student and provide support when appropriate (Rens & Jootsen, 2013). Overall, it is important for all disciplines to communicate to one another about elementary students' educational milestones and overall development to ensure students are receiving the services they need (Rens & Jootsen, 2013).

Occupational therapy practitioners have traditionally not been involved in the classroom setting to administer interventions since most school-based OT services are delivered one-to-one

for students with an Individualized Education Plan (IEP). An IEP is used with students who present with disabilities that are affecting their ability to learn or perform school related tasks independently (Martin et al., 2006). Sundar (2021) wrote about her experiences working in the school system as an occupational therapist. From her observations, she concluded that the OT profession should move from providing interventions in isolation to providing opportunities to children to practice their developing skills among peers (Sundar, 2021). This can be done by incorporating OT in the natural context of the classroom. Benefits of providing direct OT services in the classroom include increased rapport with students, develop stronger interprofessional relationships and can assist in demonstrating the value of OT in the schools (Seryua & Garfunkel, 2020). Involving other disciplines such as teachers, teacher aides and parents/guardians into a student's educational development can be beneficial as it creates a more personalized intervention plan for the student (Rens & Jootsen, 2013; Seryua & Garfunkel, 2020).

Overall, modifying the students' context by incorporating OT related activities into their natural classroom setting can increase their exposure to fine motor activities. This then leads to an increase in the school related tasks they are able to complete independently and reduce the risk of falling behind educationally (Caramia et al., 2020). When students can complete more tasks independently, their performance range widens (Dunn, 2017). When performance range widens for students, this essentially means they have access to more tasks they can complete independently; this can include school related tasks or tasks required for activities outside of the educational context that have overlapping skills.

Performance Range

Looking through the lens of the EHP model, when the performance range is small, this indicates that the person has not reached their full potential for independence (Dunn, 2017). Widening of the performance range indicates that the person has been able to complete more tasks in their context independently (Dunn, 2017). Applying the model to the elementary aged student population, context changes can include incorporating more fine motor/hand manipulation and bilateral coordination tasks into general elementary classrooms to optimize their learning experiences (Caramia et al., 2020; Dadson et al., 2020; Fogo et al., 2020; Sundar 2020). Making these changes in the students' context can increase their performance range in tasks such as legible handwriting, age-appropriate pencil grasp, scissor use or shoe tying because they have been given the opportunity to strengthen and develop their fine motor and bilateral coordination skills (Caramia et al., 2020; Dadson et al., 2020; Dunn, 2017; Fogo et al., 2020).

Gaps in Current Research

Further review of literature and other evidence on the topic area can be done to gain a better understanding of the problem and possible solutions found in the population. Below are the following areas that can be further explored through on-site observation and during the early stages of program development:

- Teachers' perspectives on their students' school performance given advancement of technology and the amount used by their students.
- The presence of already existing intervention programs used in elementary school systems that target fine motor and handwriting skills on a Tier 1 scale.
- Elementary aged students' perspectives on technology use versus hands on manipulation activities in classrooms as forms of learning.

Evidence indicates that introducing OT into the general elementary classrooms can be beneficial for peer learning/interaction among students, allow SBOTs to build rapport with students and teachers, as well as share what OT has to offer to all students; not just students who are at risk (Seryua & Garfunkel, 2020; Sundar, 2020).

Conclusion

Awareness of how to balance students' time between hands-on manipulation tasks and technology use is important to teachers, parents, caregivers, occupational therapy practitioners, and other stakeholders. It is beneficial for students' future learning experiences to be exposed to both, if not more hands-on tasks from birth to ten years old (Schneck & O'Brien, 2020). Maintaining a healthy balance between technology use and hands-on learning will likely support development of the students' fine motor skills, specifically handwriting, which then creates a better educational foundation for their future (Schneck & O'Brien, 2020; Sheedy et al., 2021). As OT practitioners, providing supportive measures to general classroom teachers to incorporate more hands-on learning in students' day to day education experiences may decrease the number of handwriting issues and other fine motor related deficits (and subsequent occupational therapy referrals) later on in the student's life (Caramia et al., 2020). To help balance technology use and hands-on learning, a program is needed to incorporate activities into general elementary classrooms that will target fine motor and bilateral coordination skills within elementary aged students. Doing so will encourage the development of skills needed to perform school tasks successfully and independently for elementary aged students.

Chapter II Literature Review consisted of collected evidence that supports Tier 1 and 2 program development to provide general elementary school classrooms with activities that integrate fine motor, bilateral coordination, and visual perception skills within the classroom

context. Implementing activities that target these skills can assist with handwriting, scissor use and other skills necessary to participate appropriately in school related activities. Chapter III provides an overview of the methodology behind the development of the program as well as the models used to guide product outcomes.

Chapter III

Methodology

This methodology chapter presents the course of action used in developing the desired program and scholarly project during a doctoral experiential placement (DEP). This DEP opportunity was required as part of the curriculum in the University of North Dakota (UND), Occupational Therapy Doctorate (OTD) program. As the participating occupational therapy student (OTS), I chose to complete the DEP in an area of interest, which was an elementary school in rural Minnesota. Public school was more of an interest for me compared to a private school due to the Department of Education standards required in public school and my desire to generalize that knowledge to my future work in other public schools found within Minnesota.

During my time at the elementary school, the goal was to design and deliver to general education classrooms, especially kindergarten and first grade, a program that would expose students to activities that engage them to encourage diversity in use of their visual perception, fine motor, bilateral coordination, and overall hand manipulation skills that are necessary for academic success and independence in daily activities. This DEP resulted in a portable program that was offered to eight general education and special education classrooms with activities designed to challenge the students' ability to manipulate objects with their hands and assist in the students' readiness for second grade handwriting and overall academic instruction.

Handwriting was heavily focused on because of the cascading effect that occurs when students first begin learning letter formations and words. Evidence has shown that early handwriting ability found in students provides foundational skills for reading literacy and comprehension of school materials later in their education (Sheedy et al., 2021). However, other skills such as tying shoes, winter gear clothing management, hand strength and fine motor

coordination are all included in searches as well because they play a vital role in age-appropriate development in education (Caramia et al., 2020; Dadson et al., 2020).

Preliminary Development

The first part of the needs assessment occurred before stepping on site, which included conducting a literature review of the elementary school population and culture. The population included learning about the responsibilities of general education teachers, paraprofessionals, school based occupational therapists and of course, the general education students. When searching for typical culture found within elementary schools, I focused mainly on the academic expectations set for kindergarten and first grade students as well as how they were being educated, either with technology, hands-on learning, or mixture of both.

Search Terms and Criteria

Beginning the literature search, databases that contained reliable articles and aligned with the topic were CINAHL, OTSearch, SAGE Journals and PubMed. The following resources also included information that pertained to the targeted population and desired intervention: American Journal of Occupational Therapy, Journal of Early Childhood Literacy, OT Practice Minnesota Department of Education and UND OTD course material.

From the American Journal of Occupational Therapy, Journal of Early Childhood Literacy, OT Practice Minnesota Department of Education and UND OTD course material, I searched for credible articles using keywords. Keywords and phrases that resulted in articles related to the topic included: **(**"occupational therapy") AND **(**"fine motor") AND ("hand manipulation") AND (students), as well as, **(**"fine motor") AND ("bilateral coordination") (Tier 1) AND ("occupational therapy intervention"). More than 50 articles resulted from these search phrases but many were aged or not applicable to the culture of a public school. Inclusion criteria

used to consolidate searches to relevant articles were articles about elementary school aged students, publications within 10 years, publications in the English language, and those based within a school setting. Exclusion criteria applied to the searches were articles about students in sixth grade and above, publications 11 years old or older, not published in the English language and those not based in a school setting. However, few exceptions were made to include articles about technology use in the students' homes to create a well-rounded image of the students' entire exposure to technology use.

Experts in the Field

When onsite, the second part of the needs assessment began with discussing the culture and population with my site mentor, who was the occupational therapist for the elementary school. I also met with the first and kindergarten general education teachers to discuss concerns and major differences they have noticed in their students over the past few years they have been teaching in regards to students' fine motor, bilateral coordination, and all-around classroom abilities. Ongoing collaboration with general education teachers, my site mentor and other specialists in the school occurred throughout my time at the elementary school to gain more information about the population and site.

I also attended special education meetings and Individualized Education Plan (IEP) meetings to learn about the culture of the school, as well as the responsibilities of each professional's role. Towards the beginning of the experience, I followed my site mentor, who is a registered occupational therapist (OTR), to observe one on one interventions with students diagnosed with an array of conditions that included autism spectrum disorder (ASD), Attention Deficit- Hyperactivity Disorder (ADHD), developmental delays (DD), visual perception difficulties and learning disabilities (LD). I continued observing the school's environment and

culture when walking the halls and attending all school assemblies. During the second week of

the DEP, I met with the kindergarten and first grade teachers to discuss the proposed program. I

also inquired about the teachers' perceptions regarding the needs of the population and

technology used in the schools for the purposes of completing the needs assessment. The

following are questions asked of the teachers during these meetings:

1. How has teaching young students (K-1st grade) changed over the course of your

   teaching career in regards to technology use vs hands on learning?

   a. What are good changes?

   b. What are changes that bring concern?

2. What pieces of technology are used most often in general classrooms?

   a. How are these pieces of technology used?

3. What educational activities do students engage in during a typical day?

Theory & Model Use

Throughout the doctoral experience, I used multiple theories and models to maintain a

sense of direction with program development, as well as making sure to keep in mind the entire

population with whom I was working. To ensure that I was considering the environment, school

tasks and the current abilities of students, I chose to use the Ecological model of Human

Performance (EHP) to guide my program development (Dunn, 2017). The EHP model provided

a lens for visualizing the goal of program development for the population of general education

students by having them attempt new tasks to increase their independence in their natural context

of the classroom, ultimately, increasing their performance range in classroom related activities

(Dunn, 2017). Introducing students to new tasks that encouraged fine motor and visual

perception skills allowed them to practice skills that then could increase their performance range in the classroom and overall academic achievements.

Learning theories such as andragogy and pedagogy were used throughout the doctoral experience to produce final activities for the program and to develop a manual for school staff so they know how to use the activities I created. Using both learning theories, andragogy, and pedagogy, was extremely helpful in knowing what language to use with each population and also how to best explain activity directions, depending on if the stakeholders were young students or adult teachers.

EHP Interventions

To facilitate changes to the environment, five types of interventions are available within the EHP model to increase the performance range of the person. These five interventions include *alter, modify, create, prevent*, and *establish/restor*e (Dunn, 2017). For program development within the public school system, only *create*, *prevent, modify,* and *establish* were utilized as intervention guidelines. The *alter* intervention was not used because there was not a complete change in the environment as students were in their natural environment, which was the classroom, when engaging in the program activities.

Create Intervention

The *create* intervention is defined as creating circumstances that provide optimal experiences for all populations and backgrounds (Dunn, 2017). In the create approach, a problem does not have to exist for the intervention to be implemented (Dunn, 2017).

Create was used to produce a new program that was used for kindergarten and first grade students and their general education teachers. Creating a new program ensured that students were

given an alternate teaching style in their classrooms, specifically hands-on learning rather than using a tablet or other hand-held device.

Prevent Intervention

The *prevent* intervention is used to reduce the probability of problems developing in the future (Dunn, 2017). Using the prevent approach involves changing person, task, or context variables to decrease negative outcome possibilities (Dunn, 2017).

Prevent approach was used to support students who may be falling behind in their academic milestones. On a larger scale, the prevent approach can help decrease the number of referrals made to occupational therapy (OT) for handwriting, scissor use, fine motor, and bilateral coordination difficulties. If young students and their general education teachers are introduced to hands-on skills practice in kindergarten and first grade, it can then prevent future cascades of challenges in later educational years. This is evident in the program through providing students with alternative ways to continue developing their fine motor coordination skills, hand strength and visual perception while they are still in the early years of their education (such as kindergarten and first grade). Students having daily exposure to these activities within their general classroom can assist in building foundational skills necessary for success in later grade levels.

Modify Intervention

The *modify* intervention is defined as making changes to the environment or adjustments to tasks to increase the performance range of an individual (Dunn, 2017).

Throughout the implementation of the program, modifications were made to the activities themselves and in the way they were set up around the classroom. For example, some activities were initially being completed at a table top but moved down to the floor to increase the

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students' visibility and access to materials. Small changes to the activities themselves to make them more durable and match the level of difficulty for the students were also made throughout the doctoral experience when needed.

Establish Intervention

The last intervention approach used is *establish*. In *establish* interventions, the approach focuses on the person's factors, specifically their skills (Dunn, 2017). Establish is used when teaching an individual a novel skill they have not previously used before (Dunn, 2017). *Restore* is when a person re-learns a skill, they have recently lost due to injury, illness or have not yet fully mastered (Dunn, 2017).

Establish intervention will be incorporated in the program development by providing students with activities to facilitate further development of skills they have learned in their early childhood years. For example, if a kindergartner has not yet begun learning how to tie shoes, then completing a shoe tying activity would be considered an establishing intervention, as in establishing a new skill. When a student is given opportunities to establish new skills, then it can increase their performance range, making them independent in more tasks. Establishment could also relate to a routine, in this case, creating a new routine in the classroom. This routine would include incorporating OT related activities into the classroom to allow students to work on these skills during their free time.

Andragogy

Part of the product includes education targeted towards adults, which is also called Andragogy. Andragogy is the art and science of helping adults learn (Bastable et al., 2020). A core assumption about the andragogy learning theory is that the teacher and the learner are, "horizontal," meaning both are imparting knowledge with each other rather than having the

teacher fully educate the learner (Bastable et al., 2020). Working collaboratively with teachers, paraprofessionals, and guardians on the importance of young students learning fine motor and visual perceptual skills will provide the most effective method when informally providing education to the school staff. Another common factor of andragogy is that adult learners are primarily motivated to learn knowledge that can be applied to current problems (Bastable et al., 2020). In this case, teachers and other school staff are noticing a concerning difference in their students' hand use (manipulative and fine motor abilities) and have presented interest in finding solutions that will help their students' educational progress. A solution that was presented through the development of the program includes exposing their students to more opportunities to work on their fine motor and coordination skills, which assists school staff in solving the current problem. One last and important aspect of andragogy is that learners, or general education teachers, want to know why learning about something specific is important and how it can benefit them (Bastable et al., 2020). Teachers and all school staff fulfill many roles and thus have limited time in the day to complete additional tasks. Meeting with and discussing the program with teachers prior to collaborating and learning from each other was very important and deemed necessary for the success of the product's sustainability. Per andragogy, the adult learners, in this case the teachers, needed to be able to use the program activities to help with problems they were facing in the classrooms (Bastable et al., 2020). Collecting information about the teachers' concerns guided the type of activities that I created and also guided how I developed the educational sessions for teachers in which they learned about the benefits the activities could bring to their classrooms.

Pedagogy

Pedagogy is the art and science of helping children learn (Bastable et al., 2020). The product will be directly used by students who are classified as middle and late childhood, approximately 6 to 11 years of age (Bastable et al., 2020). A broad characteristic of children at these ages and level of learning development is that children are motivated to learn due to their curiosity about their bodies, the environment around them and, overall, how the world works around them (Bastable et al., 2020). Learning is also subject centered, meaning the learning is based on memorization, receiving knowledge on the facts, ideas and important concepts (Bastable et al., 2020). Middle and late childhood aged children have a foundational understanding about cause and effect when completing activities (Bastable et al., 2020). When comparing this milestone to the product, students can understand that working on their hand strength, ability to grip a pencil correctly and manipulate small objects in their hands are preparing them to learn handwriting in their future schooling.

Project Timelines and Procedures

Prior to arriving at the site, I first connected with my site mentor via Zoom twice to go over my plan for my program development and what I hoped to accomplish during the doctoral experience. During these meetings is where I shared the types of activities I was considering for implementation. I was given names to people I could reach out to while on site to collect more information for my needs assessment. These first two pre-site meetings with my site mentor were very helpful preparations that informed the project and served as an orientation to the onsite work.

The first four weeks at the site were spent continuing to develop the needs assessment by learning about the setting, collaborating with teachers and other school specialists. I also made

observations in kindergarten and first grade general education classrooms and reviewed literature to find correlations between the two sources. During classroom observations, not only were the students' activities and abilities considered but I also spent time introducing myself to the children as a means of building familiarity with the populations for whom the program was intended. Because the program involves working in small groups and large classroom groups, it was imperative for the students to know who I was prior to me working individually with students. As part of the building process, I carefully reflected on what I learned in the classrooms during the needs assessment and took informal notes about observations made during the first four weeks.

Other preparatory measures that were taken before the implementation of the program included meeting with all the kindergarten and first grade teachers within the first four weeks to inform them about the program. During the meetings, I introduced myself, what I was planning on creating and gained the teachers' input on possible activities and where the students struggle in regards to hands-on skills. After meeting with all eight participating teachers, I created a program handout that was to be sent out to parents. The handout included a description of who I was, what OT was and how OT could assist with educational success. The handout also contained information about the activities being created, pictures of the activities, and lastly the contact information to reach me and my site mentor. My site mentor reviewed and provided editing suggestions before I finalized the handout. The program handout was sent to the principal of the school for approval and to also provide information about the program being implemented. Once the principal was notified and provided consent, the handout was shared with teachers who then provided the information to students' parents via email or printed handouts.

To create a schedule and caseload for the program implementation, I collaborated with general education teachers in the kindergarten and first grade classrooms. Small group and large group directive learning are deemed beneficial strategies for teaching in elementary age classrooms (Ansari & Purtell, 2017). Needs assessment of stakeholders revealed that first graders should be provided the program as a whole classroom while kindergarteners should participate in the program in small groups to encourage work on areas that are difficult and contribute readily to academics. To create a caseload for the program implementation, I had kindergarten teachers provide information about the students they believed would benefit the most from the program as well as the areas in academics that are most challenging for them. I used this information to create and implement activities that would work on each students' skill area that was challenging.

Throughout weeks 5 to 13, the program activities were modified as needed to make them more appropriate for the student population with whom I was working. Modifications included grading the activities to make them easier or harder as well as modifying how the activities were to be presented. During week 10, I presented my program activities to the OTs in the district to provide them intervention ideas and gain their feedback on what could be added to help with grading activities or make them more durable. Set up of activities were modified more so in the first-grade classrooms because of the large group setting and needing to accommodate an entire classroom so they could use the activities successfully. Learning how to best transition 25 students through stationed activities improved time efficiency and the overall flow of the experience for both me and the classroom teachers.

When I was not with students during the day, I was working on chapters of the scholarly project, making modifications to existing activities and making entirely new activities. I would

try to write the chapters as the doctoral experience went on so that the information would be recent and detailed. Writing a portion of my chapters everyday allowed for a balanced schedule between spending time writing at the computer, working directly with students and physically creating program activities. During the fourteenth and final week of the DEP, I finalized the activities and finished the program manual for general teachers and school based occupational therapy (SBOT) to utilize for continuation of activity usage.

Ethical Considerations of the Project

When developing the product and implementing the program, I wanted to maintain ethical standards and expectations found within the school culture. The first consideration is to ensure that students do not miss class time when they are going over academic material that would be difficult to catch up on. For example, when working with students in small groups, they would come out of the classroom to decrease distractions. I worked closely with teachers to find the most appropriate times to work with students so that they do not miss academic topics that are essential to their educational development.

Another ethical consideration that was made during the product development and throughout the program implementation was using vocabulary that was age appropriate for kindergarten and first grade students. Especially working with a full classroom of first graders, it was imperative to use words that the students would understand while giving initial activity instructions. Even after initial instructions to the whole class, I made it a priority to move around the room during the activities and help students wherever needed.

Lastly, I worked towards making all the activities occupation based and intriguing for the students. Occupation based activities look like practicing writing one's name, cutting with scissors for a craft project, buttoning clothing, etc. Also ensuring that the activities truly worked

on academic skills while providing a therapeutic level of instruction to help students develop their abilities. Therapeutic level of instruction includes correcting pencil grip, providing alternative ways to complete tasks, challenge their existing skills and exposing them to motor and visual perception activities they may not have available in their current classrooms.

Final Product

Ultimately, these efforts culminated in the creation of 22 activities that promote hands-on learning and skill development for students to use within their classrooms, in small groups or with school support professionals.

Summary

In Chapter III Methodology, I explained the prerequisite work and strategies used to create the product and increase successfulness in program implementation. Along with the methods used to create a program, ethical considerations for program development were also discussed that were respectable to general teachers, students, SBOT and other school staff personnel. Chapter IV Product is the final activity manual that was created for the site's population.

Chapter IV

Product

This product/program was created during the doctoral experiential placement (DEP). The duration of the DEP was 14 weeks and consisted of working with a registered occupational therapist, general education teachers and general education students in kindergarten and first grade. The program that was developed and implemented consisted of provision of occupational therapy activities to children in the general education classrooms in the first and kindergarten grades. For program implementation, I entered general kindergarten and first grade classrooms to provide the students with activities that targeted fine motor, hand manipulation, bilateral coordination, grasp, and visual perception related skills. The intended outcome from program implementation was to assist in preparing and advancing kindergarten and first grade students' skills for future educational benchmarks such as handwriting, using scissors, and independently completing daily tasks like managing clothing.

I developed the program through reviewing literature, completing a needs assessment through semi-formal conversations/interviews with the school-based occupational therapists and general education kindergarten and first grade teachers. Using information from literature and interviews, the developed program provided general education classrooms in kindergarten and first grade additional fine motor and hands-on activities for students to use during their school day so they could further develop skills needed for future academic milestones.

Partnering Agency

To complete the elementary school's needs assessment, I completed informal observations of general classrooms and 1:1 occupational therapy (OT) interventions within a rural elementary school. The school district that the elementary school was in consists of five

elementary schools, two middle schools and one high school. For the DEP and as a graduate student, I remained and implemented the program within one elementary school to maintain consistency and build rapport with the teachers, students and school staff during program development and implementation. The elementary school worked with students from kindergarten to fifth grade, children approximately aged 6 to 11 years old. More specifically, I worked closely with four kindergarten classrooms and four first grade classrooms. First grade teachers opted for the entire class to participate in the OT related activities as they believed that all of their students could benefit from additional hands-on learning. Kindergarten teachers however, opted to have small groups of students work outside of the classroom as they identified students in their classrooms that could benefit from the extra practice. To align with the attention spans of kindergarten and first grade children, their teachers recommended each time spent with them be no longer than 20 minutes, as this is about as long as teachers spend on a school lesson during a regular school day to keep students interested.

Guiding Theories

Ecology of Human Performance Model

The Ecology of Human Performance (EHP) model was the guiding model throughout the product development and overall implementation (Dunn, 2017). EHP was deemed most appropriate in guiding product development as it provided a clear vision of the *person* being able to complete more tasks within their *environment*, ultimately granting them more independence in their daily lives (Dunn, 2017). In this case, the person was a kindergarten or first grade student, tasks were their ability to use a pencil for handwriting, manipulate objects related to clothing management and bilateral coordination for cutting paper with scissors.

Andragogy

Part of the product included education targeted towards adult (i.e., the teachers, school staff) learning which is also called Andragogy. Andragogy is the art and science of helping adults learn (Bastable et al., 2020). A core assumption about the andragogy learning theory is that the educator and the learner are, "horizontal," meaning both are imparting knowledge with each other rather than having the educator fully teach the learner (Bastable et al., 2020). In relation to the development of the program, collaborating with teachers, paraprofessionals, and school staff on the importance of young students learning fine motor and manipulation skills was found to be the most effective method of educating adults on the site.

Pedagogy

Pedagogy is the art and science of helping children learn (Bastable et al., 2020). The population of the product was used directly by students who are classified as middle and late childhood, approximately six to eleven years of age (Bastable et al., 2020). A broad characteristic of this level of learning development is that children are motivated to learn due to their curiosity about their bodies, the environment around them and overall, how the world works around them (Bastable et al., 2020). Learning is also subject-centered meaning the learning is based on memorization, receiving knowledge on the facts, ideas and important concepts (Bastable et al., 2020). Fine and gross motor coordination of children in grade school (kindergarten through 5th grade) become increasingly developed, specifically their dexterity in their hands and bilateral coordination to complete once complex tasks such as cutting a piece of paper or tying shoes (Bastable et al., 2020). However, the targeted population for the product was young children within the middle childhood stage, such as students aged six to seven years old. In kindergarten and first grade, students are still developing their fine motor skills and

coordination prior to when they begin their formal handwriting education in the second grade (Caramia et al., 2020). Middle and late childhood aged children have a foundational understanding about cause and effect when completing activities (Bastable et al., 2020). When comparing this to the product, students can understand that working on their hand strength, ability to grip a pencil correctly and manipulate small objects in their hands are preparing them to learn handwriting in their future schooling.

Product Organization

The product was developed as a collection of 22 age-appropriate activities that challenged the fine motor, bilateral coordination, and visual perception skills of kindergarten and first grade students. In relation to the EHP model, the activities would be considered the *tasks* (Dunn, 2017). The tasks are the things that the students can do for themselves and that can increase their performance range while in the classroom. For example, activities such as beading, weaving, paper cutting, play doh, buttoning and tying were incorporated into the activities created that can increase students' independence both in the classroom and at home. Many of the activities specifically targeted letter formation, letter recognition skills, pincer grasp and hand strength that would prepare students for manuscript handwriting instruction in the second grade. The context could also be changed by having activities available to students that are dedicated to learning skills required for daily functioning such as clothing management, visually scanning environments for certain stimuli and picking up small objects. With each activity, there was an instructional guideline for teachers and other school staff to follow so they could continue to utilize the activities when I was no longer onsite. Each instructional guideline included the name of the activity, how to use it, what skills it works on, how it can be beneficial to educational development and ways to make it easier or more challenging for the student. Making the

activities harder for the student is listed first on each page so it challenges the students' current abilities, which helps them to grow their existing skills. However, if the student is having difficulty with the activity, the next section provided ways to make the activity easier. Matching the difficulty level of the activity to each individual student can help them feel a sense of success and accomplishment.

Program Information Handout

To promote and inform the site's population about the program, I created a handout that explained what OT was, how it helps with school related tasks and included examples of activities that would be used. The handout was first sent via email to my site supervisor for review and editing prior to emailing it to the school's principal. After receiving permission from the principal, the handout was sent to general education teachers, who then sent the handout via email to the parents or guardians of the kindergarten and 1st grade students. The handout was necessary, as to first introduce the program, the activities provided within the program and also educate readers on the impact the program activities could have on their students' educational growth.

Summative Questionnaire

Part of the collaboration with school staff when developing activities included a questionnaire sent out to first grade general education teachers after working in their classrooms for four weeks. Questions that were asked in the questionnaire related to the benefits teachers have noticed from the activities, what was not beneficial and their overall thoughts on how the activities could help students' every day academics. The feedback from this questionnaire was used to make modifications to activities and provide school staff with what they thought would be most helpful for students' educational development.

Developed Program Activities and Manual

Program activities that were developed each have an instructional page containing information about each activity, how to implement the activity, along with the cost of materials and how to make each activity. The activities are in no order; however, there is a table of contents provided at the beginning of the manual that helps locate specific activities. Although the activities are placed in categories based on the main skills they target, there are many skills that are being used in each activity that overlap. This means that an activity can be used to target multiple different skills. Towards the end of the manual is a broad questionnaire for school staff to use as a way to track the effectiveness of activities being used in their classrooms or by individual students. A checklist was also created for teachers to utilize when they borrow activities. The checklist serves as a resource to know which activity is being used, by whom and where in the building it is located. Overall, the program manual is filled with activities that provide teachers, paraprofessionals, school-based OTs and other school support staff ideas for engaging students to practice school related skills using hands-on strategies.

In Chapter IV Product, I explained the program development and the final product outcome that came from program implementation in addition to how theories, such as EHP and learning styles for different ages, provided support for product development. Chapter V Summary includes a description of the final outcomes of the product, sustainability factors for the created OT activities, and overview of the entire DEP and scholarly project (SP) development process.

Chapter V

Summary

Chapter V Summary includes review of the conclusions and outcomes from the scholarly project (SP) developed for the partnering agency and was supported by a doctoral experiential placement (DEP). The purpose of this SP was to build a program to provide kindergarten and first grade general education classrooms activities that work on skills necessary for development in handwriting, reading, writing, spelling and clothing management. Limitations, strengths, implications, and recommendations of the SP provide a review of the creation process and intended outcomes moving forward.

Problem Statement

With the increase in technology use, both in the homes and classrooms, there is a decrease in the amount of time elementary aged students are engaging in hands-on activities and manipulation tasks that are necessary for developing fine motor and visual perception skills (Caramia et al, 2020; Fogo et al., 2020; Sheedy et al., 2021). Subsequently, there is a trend that shows children do not have the fine motor skills needed to independently complete many school-related activities, such as handwriting, scissor cutting or coloring (Caramia et al., 2020; Dadson et al., 2020). Fine motor and visual perception skills are also needed for completing everyday tasks like shoe tying, zipping coats and buttoning shirts (Caramia et al., 2020; Lin, 2019). The purpose of this SP was to build a program to provide kindergarten and first grade general education classrooms activities that work on skills necessary for development in handwriting, reading, writing, spelling, and clothing management.

Outcomes

Outcomes of the doctoral experiential placement (DEP) and scholarly project (SP) resulted in 22 ready to use activities that encourage development in fine motor strength, bilateral coordination, and visual perception skills. Activities are accompanied by an instructional manual for teachers that explain how to use each activity, an activity check-out list for the site personnel and a brief introduction to occupational therapy (OT) and the benefits the OT-based activities can have towards students in school.

Preliminary Work & Needs Assessment

Preliminary needs assessment was completed by conducting a literature review. Literature pertaining to school culture, tablet use in young children and fine motor development were used to begin building evidence of need. Evidence found within the literature review indicated that there had been an increase in the amount of time students are using technology over the last decade and that it negatively affects children's fine motor, visual perception and overall upper body coordination development (Caramia et al, 2020; Dadson et al., 2020; Fogo et al., 2020; Sheedy et al., 2021).

Onsite Experience & Formative Needs Assessment

The DEP took place in rural Minnesota at an elementary school. Although the elementary school was made up of students ranging from kindergarten to fifth grade, the population of focus were students in kindergarten and first grade general education classrooms. Formative needs assessment consisted of informal observation of general education classrooms and observations of one-on-one interventions with my site mentor, who is a school based occupational therapist. The informal observations gathered information about the site's culture and students' performance in fine motor strength, bilateral coordination, and visual perception. Informal

conversations with all general education teachers from kindergarten and first grade provided information about skills students were having difficulty with. Observations onsite and conversations with general education teachers corresponded with evidence found in the literature review as part of the preliminary needs assessment.

Information from the informal observations, interviews and literature review that were conducted as part of the needs assessment were used to develop portable activities that target fine motor, bilateral coordination, visual perception, and upper extremity coordination skills necessary for academic success.

Program Overview & Implementation

During the DEP, I worked with four first grade classrooms and four kindergarten classrooms to implement the program's activities and provide students with additional hands-on skill development. Each week for two months, five activities from the program were brought into a first-grade classroom for students to use in stations. For the same duration of time, small groups of kindergarteners engaged in the program activities as well. Not only were students engaging in the OT activities, but teachers were simultaneously learning about each activity that was available in the program. The informal education given to the teachers about the activities provided them with options for alternative ways for their students to learn within the context of the general classroom. Teachers informed me that the use of the activities would be very helpful in their classroom as they are a way for students to work on both their academic development as well as their motor strength, coordination, and visual perception skills.

Implications for Occupational Therapy

School based occupational therapy (SBOT) is an important part of special education classrooms, providing students with Individualized Education Plans (IEP) extra services to

support their academic and developmental growth (Cahill & Bazyk, 2020). Prior to arriving onsite, only special education classrooms were working with SBOT for interventions like emotional regulation, handwriting and sensory needs (Cahill & Bazyk, 2020). However, providing general education students with OT based activities can help those who are struggling academically or developmentally but do not qualify for an individualized education plan (IEP) and further support (Cahill & Bazyk, 2020). OT based activities can assist students in their daily learning and act as a Tier 1 intervention, also known as preventative measure, for future challenges in later grade levels and future careers (Lin et al., 2017; Lin, 2019; Sheedy et al., 2021).

Sustainability

The *OT activities* product consisted of 22 ready-to-use activities for students, an activity instructional manual, an activity checkout list and education shared with teachers and other school staff about OT based activities for students in their classrooms. The activities can be duplicated, re-created, modified, and used repeatedly by any student or teacher in the school who needs it. School staff were educated on the activities and how they can track where certain activities are by using a checkout list. The product is sustainable because the activities are portable, easy to use and are provided with specific instructions on how to meet each student's ability level. For physical sustainability, the activities were created with malleable, durable material that can be used by many students without breaking or needing to be replaced.

Teachers and school staff can use the program activities however they see fit as means to provide alternative ways to have their students practice spelling, handwriting, math or reading skills. Modifications to when and how to use each activity provide sustainability as well, by grading the activities (making the activities harder or easier) for each student. Not only can

general education teachers benefit from the activities, but also school based occupational therapists, paraprofessionals and special education teachers can utilize these activities with their students to develop academic skills. A brief questionnaire, consisting of nine questions, has been included with the activities and is intended to help the teachers make decisions about use of the activities. The questionnaire guides school staff through determining whether the activities are beneficial for the group of students or what could be changed within the context to make the activities more effective. Overall, the activities are not meant for one specific population but rather for an entire elementary school to help students grow both academically and developmentally.

Strengths and Limitations

The strengths of this scholarly project include the collaboration opportunities with the general education teachers who shared their time and expertise. Their willingness to have me come into their classrooms and work with their students resulted in the development of activities that are really tailored to the children in the classrooms and the culture of the school. This type of interprofessional collaboration is evidenced to be a great resource for students who are having challenges in their school context (Kielche, 2021). Furthermore, having the collaboration of my site mentor to make activity modification suggestions and providing me with contact information to communicate with school staff was another strength towards the scholarly project because it grounded the product in the context of the school.

Limitations of the scholarly project included the lack of availability for teachers in their classrooms or missed days of school. For much of the DEP, each first-grade classroom was involved in the program activity stations. However, with snow days and other national holidays, there were some weeks where classes were not given the time to engage in the activities. Another

limitation was not being able to train kindergarten and first grade paraprofessionals about going into first grade classrooms to create stations. Both for lack of time for myself and the paraprofessionals with the existing needs of students that require one on one paraprofessional attention. Like the strength of interprofessional collaboration, not having the opportunities can decrease the successfulness of the OT activities usage and possible outcome for students' development (Kielche, 2021).

Recommendations

It is recommended that school staff continue to use the activities for the remainder of the 2022-2023 school year, but also implement them right away again in the Fall of the 2023-2024 school year. Doing so will allow students more opportunities to practice academic skills in alternative ways and provide teachers with a better idea of a student's baseline at the beginning of the year compared to their skill development towards the end of the school year. It is also recommended that if an OT student or pre-OT student were to come to the site for fieldwork, they can make modifications to the activities or add additional activities to create more for teachers and school staff to use. Continually adding more activities to the already existing program will promote sustainability and provide new ideas towards helping students develop their academic skills in the classroom.

Conclusion

After 14 weeks at the school site, this scholarly project was developed resulting in 22 portable, hands-on activities that promote growth in academic and developmental skills for kindergarten and first grade students. The activities targeted fine motor strength, bilateral coordination, visual perception, and other preliminary skills necessary for success in future grade levels such as handwriting, math, reading, spelling and clothing management skills. It is

recommended that staff at the school continue using the activities within their classrooms, both general and special education, to provide students alternative methods for learning educational material. Along with the activities, the final product includes an instructional manual on how to use each activity, how to make each activity and a checkout sheet so teachers can track who and where each activity is being used within the school. The school population, consisting of both school staff and students, were pleased with the activities and found them to be both fun and academically beneficial. School staff were grateful to have activities to use within their classrooms that will further prepare students for future education and overall hands-on skill development.

References

Altenmüller, E., & Ioannou, C. I. (2016). Maladaptive Plasticity Induces Degradation of Fine Motor Skills in Musicians. *Zeitschrift Für Psychologie*, *224*(2), 80–90. https://doi-org.ezproxylr.med.und.edu/10.1027/2151-2604/a000242

American Occupational Therapy Association (AOTA). (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*, 74 (supplement 2). Advance online publication.

Ansari, A., & Purtell, K. M. (2017). Activity settings in full-day kindergarten classrooms and children's early learning. *Early Childhood Research Quarterly*, *38*, 23–32. https://doi.org/10.1016/j.ecresq.2016.09.003

Bastable, S. B., Myers, G. M., and Arnaud, L. M. (2020). Developing stages of the learner. In S. B. Bastable, P. R. Gramet, D. L. Sopczyk, K. Jacobs, & M. M. Braungart (Eds.), *Health professional as educator: Principles of teaching and learning* (2nd ed., pp. 185-237). Jones and Bartlett Learning, LLC

Cahill, S., & Bazyk, S. (2020). School-based occupational therapy. In J. C. O' Brien & H. Kuhaneck (Eds.), *Case-Smith's occupational therapy for children and adolescents* (8th ed., pp. 627–658). Elsevier.

Caramia, S., Gill, A., Ohl, A., & Schelly, D. (2020). Brief Report—Fine motor activities in elementary school children: A replication study. *American Journal of Occupational Therapy, 74,* 7402345010. https://doi.org/10.5014/ajot.2020.035014

Chaves-Gnecco, D., & Feldman, H. (2023). Developmental/behavioral pediatrics. In *Zitelli and Davis' atlas of pediatric physical diagnosis* (pp. 71–99). Elsevier.

Dadson, P., Brown, T., & Stagnitti, K. (2020). Relationship between screen-time and hand

    function, play and sensory processing in children without disabilities aged 4–7 years: A

    exploratory study. *Australian Occupational Therapy Journal*, *67*(4), 297–308.

    https://doi.org/10.1111/1440-1630.12650

Dunn, W. (2017). The ecological model of occupation. In J. Hinojosa, P. Kramer & C. Royeen

    (Eds.), *Perspectives on human occupation: Theories underlying practice* (2nd ed., pp.

    207-235). F.A. Davis.

Fogo, J., Spangler, S., Rose, H., White, M., Moore, J., Yeldell, C., & Struewing, R. (2020). Fine

    motor activities in kindergarten classrooms. *American Journal of Occupational Therapy*,

    74(4), 7411505089p1. https://doi.org/10.5014/ajot.2020.74s1-po1130

Hopkinson, A. (2017). *Time children spend on mobile devices has tripled in four years*.

    EdSource. Retrieved September 15, 2022, from https://edsource.org/2017/time-children-

    spend-on-mobile-devices-has-tripled-in-four-years

Ingersoll, R. M., Sirinides, P., & Dougherty, P. (2018). Leadership matters: Teachers' roles in

    school decision making and school performance. *American Educator*, *42*(1), 13+.

    https://link.gale.com/apps/doc/A532656231/EAIM?u=ndacad_58202zund&sid=bookmar

    k-EAIM&xid=24a83fa2

Kielche, C. J. (2021). *Exploring occupational therapists' and teacher aides' collaboration in a

    school-based setting* [Ithaca College Theses]. Digital Commons IC.

    https://digitalcommons.ithaca.edu/ic_theses/440

Lin, L.-Y. (2019). Differences between preschool children using tablets and non-tablets in visual

    perception and fine motor skills. *Hong Kong Journal of Occupational Therapy*, *32*(2),

    118–126. https://doi-org.ezproxylr.med.und.edu/10.1177/1569186119888698

Lin, Y.-C., Chao, Y.-L., Wu, S.-K., Lin, H.-H., Hsu, C.-H., Hsu, H.-M., & Kuo, L.-C. (2017).

    Comprehension of handwriting development: Pen-grip kinetics in handwriting tasks and

    its relation to fine motor skills among school-age children. *Australian Occupational*

    Therapy Journal, *64*(5), 369–380. https://doi.org/10.1111/1440-1630.12393

Martin, J. E., van Dycke, J. L., Christensen, W. R., Greene, B. A., Gardner, J. E., & Lovett, D. L.

    (2006). Increasing student participation in IEP meetings: Establishing the self-directed

    IEP as an evidenced-based practice. Exceptional Children, *72*(3), 299+.

    https://link.gale.com/apps/doc/A143213423/EAIM?u=ndacad_58202zund&sid=bookmar

    k-EAIM&xid=fa88e917

Mississippi College. (2017, September 1). *Technology in elementary classrooms*. Mississippi

    College Online. https://online.mc.edu/degrees/education/med/elementary/technology-in-

    elementary-classrooms/

Myott, F., Hall, L., Rackley, M., & Busch, A. (2016). *Developmental milestones guide* (3rd ed.,

    pp. 2–5). Coastal OT Connections, LLC.

Neumann, M. M., & Neumann, D. L. (2015). The use of touch-screen tablets at home and pre-

    school to foster emergent literacy. *Journal of Early Childhood Literacy*, *17*(2), 203–220.

    https://doi.org/10.1177/1468798415619773

Papaspyros, S. C., Kar, A., & O'Regan, D. (2015). Surgical ergonomics. Analysis of technical

    skills, simulation models and assessment methods. *International Journal of Surgery*, *18*,

    83–87. https://doi-org.ezproxylr.med.und.edu/10.1016/j.ijsu.2015.04.047

Rens, L., & Joosten, A. (2013). Investigating the experiences in a school-based occupational

    therapy program to inform community-based pediatric occupational therapy practice.

    Australian Occupational Therapy Journal, *61*(3), 148–158. https://doi.org/10.1111/1440-

    1630.12093

Robinson, A. (2022, January 21). *Effective uses of technology in elementary school.* George

    Lucas Educational Foundation; Edutopia. https://www.edutopia.org/article/effective-

    uses-technology-elementary-school

Saini, M. K., & Goel, N. (2020). How Smart Are Smart Classrooms? A Review of Smart

    Classroom Technologies. *ACM Computing Surveys (CSUR)*, *52*(6), 1–28.

    https://doi.org/10.1145/3365757

Schneck, C. M. & O'Brien, S. P. (2020). Assessment and treatment of educational performance.

    In J.C. O'Brien & H. Kuhaneck (Eds.), *Case-Smith's occupational therapy for children*

    and adolescents (8th ed., pp. 374-394). Elsevier.

Seruya, F. M., & Garfinkel, M. (2020). Caseload and workload: Current trends in school-based

    practice across the United States. *American Journal of Occupational Therapy, 74,*

    7405205090. https://doi.org/10.5014/ajot.2020.039818

Sheedy, A. J., Brent, J., Dally, K., Ray, K., & Lane, A. E. (2021). Handwriting readiness among

    digital native kindergarten students. *Physical & Occupational Therapy in Pediatrics,*

    41(6), 655-669, DOI: 10.1080/01942638.2021.1912247

Strooband, K., Rosnay, M., Okely, A. & Veldman, S. (2020). Systematic review and meta-

    analyses: Motor skill interventions to improve fine motor development in children aged

    birth to 6 years. *Journal of Developmental & Behavioral Pediatrics, 41* (4), 319-331. doi:

    10.1097/DBP.0000000000000779.

Sundar, S. (2021, May 12). Effecting change in school-based practice: Fostering social inclusion in a co-occupation program. *American Occupational Therapy Association.* https://www.aota.org/publications/ot-practice/ot-practice-issues/2021/effecting-change-in-school-practice

Swinth, Y. (2019). Education. In B. A. Boyt Schell & G. Glenn (Eds.), *Willard and Spackman's occupational therapy* (13th ed., pp. 753-778). Wolters Kluwer.

Taverna, L., Tremolada, M., Tosetto, B., Dozza, L., & Renata, Z. S. (2020). Impact of Psycho-Educational Activities on Visual-Motor Integration, Fine Motor Skills and Name Writing among First Graders: A Kinematic Pilot Study. *Children*, *7*(4), 1–16. https://doi-org.ezproxylr.med.und.edu/10.3390/children7040027

Occupational Therapy Activities for the Classrooms

Created by Sami Larson, OTDS

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Supervised by Pam Gantner, OTR/L

Table of Contents

*Note: Activities listed under a specific skill category can also be used to target other skills listed as there is overlap in what skills are being used in each activity.

Introduction

Hello! My name is Sami Larson and I want to welcome you to the occupational therapy activity manual.

I am excited to have had the opportunity to develop 20+ occupational therapy-based activities that are ready to be used by your students. In this manual, you will find out what occupational therapy (OT) is, how it helps with school and instructions on how to use all of the activities, as well as how to recreate them.

Disclaimer: Use of common locations or trade names are not promoted, advertised or affiliated with any company or brand. Trademark stores and brands listed in the materials sections are simply to provide resources for teachers and school staff wishing to locate items for purchase.

So, to start…

What is Occupational Therapy (OT)? OT practitioners work with people of all ages and backgrounds to help them learn necessary skills to live, work and play independently.

How does it help with school? OT practitioners work with teachers to help students reach their educational goals. Your students' teachers include hands-on learning in the classroom every day and OT is there to support students who may need more practice with certain skills. These skills include handwriting, recognizing letters, using scissors, large muscle coordination or manipulating small objects. The goal of OT is to help students successfully complete classroom activities on their own.

Which students benefit from OT? All students can benefit from the OT activities because they work on skills needed to participate in everyday school tasks.

Please take time to explore this manual for different activities that you think would be beneficial for your students. These activities are appropriate to use with entire classrooms and/or small groups of students.

*View the Table of Contents to assist with finding activities that will target specific skills.

Board Weaving

**Materials included:**

- 5 Weaving boards

How to use: Use the attached string to weave through the outer holes in the board to complete the outline of the shape. Then unravel for the next person.

What does it work on? Pincer grasp, bilateral coordination, hand-eye coordination, improves concentration.

How does it help with school? Finger strength for handwriting, promotes creativity and problem-solving skills.

Make it harder: Attempt a, "whip stitch," when weaving. A whip stitch is where the string is weaved in a circular motion through the front of each hole. Looks like this pictured to the right:

Make it easier: Skip every other hole to provide more space to work the string through the holes with the fingers.
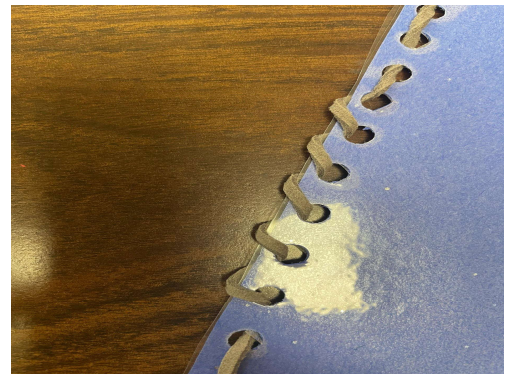
(Larson, 2023)
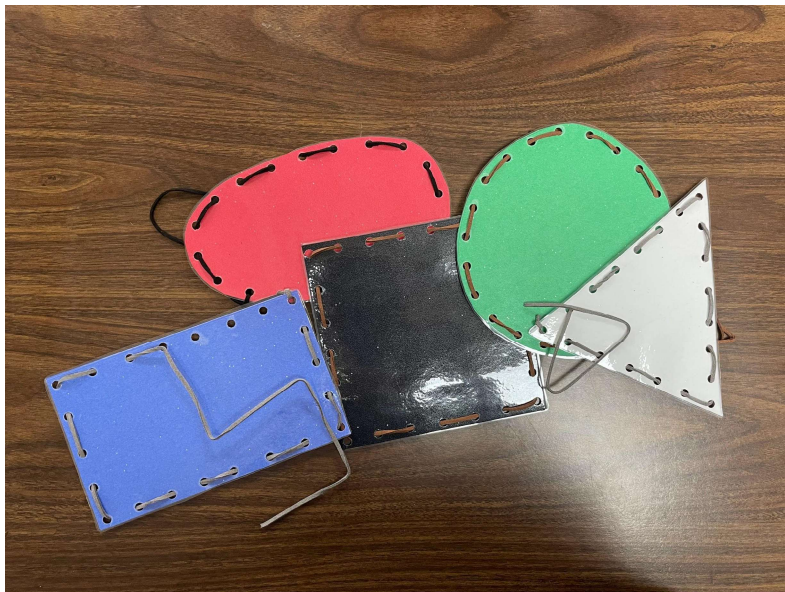
(Larson, 2023)

Evidence citation: (Strooband et al., 2020)

Board Weaving

Materials	Where to find/buy	Cost	Resource Links
Colored construction paper	FES supply closets, Amazon	$6.59	Tru-Ray Construction Paper P103031, 10 Classic Colors, 9" x 12", 50 Sheets (amazon.com)
Laminator and laminating sheets	Utilize FES laminator, Target	$29.99 for personal Laminator machine $10.59- 25ct Laminator sheets	Scotch Thermal Laminator With 2 Starter Pouches 8.5" X 11" : Target Laminator Sheets : Target
Hole puncher	FES supply closets, Amazon	$4.11	Amazon.com : Officemate 1- Hole Punch, 5 Sheet Capacity, Silver (90091) : Arts, Crafts & Sewing
Suede cord	Amazon	$7.99	Amazon.com: Leather String, Flat Suede Cord Faux Leather Cord Thin Leather Lace for Bracelets, Necklaces, Jewelry Making and Art Crafts (2.7MM Brown)

How to make:

1. Take 2 sheets of construction paper (any color) and glue them together: Using 2 sheets will make the boards more durable.
2. Cut out a shape of your choosing (square, circle, star, etc.) that is about 7x7 inches wide and tall to create the board.
3. Run the construction paper shapes through a laminator and cut out the shapes from the lamination.
4. Using a hole puncher, punch out holes along the outer edge of both the laminating paper and construction paper that are about 1-2 cm apart from one another to create the holes around the border.
5. Attached a leather/suede cord string to one of the holes in the corner of the board by double knotting it through the hole. Make the strong long enough that it can be weaved through all the holes in the board.

Button Links

Materials Included:

- 38 button links (5 colors; red, purple, pink, green and blue)

How to use: To start, create the first button link by wrapping it in a circular motion to have the button and the button opening meet. Connect the two ends (like you would when you button a jacket). Take a second button link and put it through the first circular link created and button it so it is connected to the first link as seen in the picture directly below. Repeat the process until you create a long link and unbutton it for the next person.

What does it work on? Bilateral coordination, hand eye coordination, pincer grasp, pre-planning.

How does it help with school? Finger strength/dexterity for handwriting, spatial orientation (how things fit together), clothing management.

Make it harder: Try putting the button link on like a bracelet and button with one hand to make the link. Is very similar to dressing oneself with a button on the sleeve.
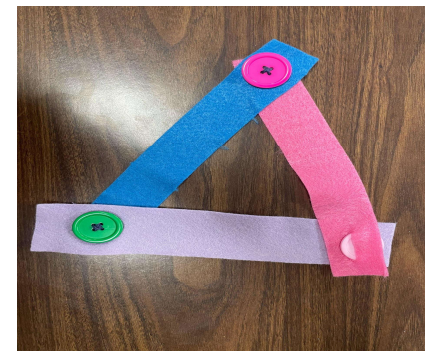

(Larson, 2023)

Make it easier: Make a design/shape or long line with the button links on the table top. The table top will provide more support and students can have more control over buttoning.

(Larson, 2023)

(Larson, 2023)

Evidence citation: (Silverman et al., 2021)

Button Links

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Colored felt sheets	Walmart, Michaels, Hobby Lobby	$8.88	Mixed Color Soft Nonwoven Felt Fabric Sheets Patchwork DIY Craft 40pcs - Walmart.com
Buttons	Amazon, Hobby Lobby	$8.97	Amazon.com: Chenkou Craft Mix Color Plastic Resin Circle Big Button 4 Holes DIY Craft Sewing 30mm 40pcs(Mix, 1 1/4"(30mm))
Embroidery string	Amazon, Hobby Lobby	$5.68 Can purchase string individually for around $0.89 at craft stores	Amazon.com: Cldamecy Embroidery Floss,13 Skeins White & 13 Skeins Black Embroidery Threads for Cross Stitch,Friendship Bracelets String,and DIY Art Craft ,with 10 PCS Floss Bobbins : Arts, Crafts & Sewing
Embroidery needle	Amazon, Michaels	$3.99	DMC® Embroidery Needles | Needles | Michaels

How to make:

1. Cut felt sheets into 5-6 strips, cut felt sheet in the hamburger orientation
2. Using the embroidery needle and embroidery string, sew a button on one end of the felt strip. Go through each of the 4 holes in the button 2x to make it more durable, then triple knot the string to ensure that it is secure. Cut off excess string.
3. On the opposite side of the felt strip from where the button was sown, cut a hole into the felt that is about <1 inch in length. This will be where the button can be pulled through and create the connection to make a link or connect to other button links.
4. Repeat steps 1-3 to create more button links.
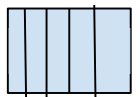
Spelling Beads

Materials included:

- Container of alphabet letter beads
- 1st grade sight words attached to pipe cleaners
- Kindergarten sight words attached to pipe cleaners

How to use: Using a sight word piece with the attached pipe cleaner, spell the word that is displayed using alphabet beads. Place the beads on the pipe cleaner in the correct sequence and orientation to spell the word.

What does it work on? Visual scanning, letter recognition, form constancy (ability to recognize letters in different forms/designs), pincer grasps, hand manipulation, sequencing, bilateral coordination.

How does it help with school? Spelling sight words, hand strength/manipulation for handwriting, finding letters/words in students' reading.

Make it harder: Have students write the word with a pencil and paper after they spell it with beads.

Make it easier: Provide the student with a smaller number of beads to see if they are having difficulty locating specific letters in the pile. Also, only have one of the words out at a time so as to not overwhelm the student when seeing multiple words at the same time.
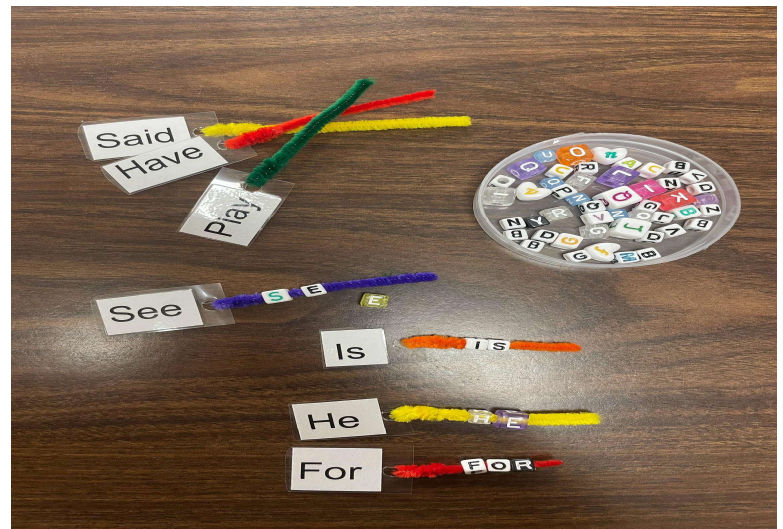
(Larson, 2023)

Evidence citation: (Cahill & Bazyk, 2020)

Spelling Beads

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Letter beads	Amazon, Hobby Lobby, dollar general/tree	$6.55	Amazon.com: 500PCS White Letter Beads Alphabet Beads for Jewelry Making DIY Necklace Bracelet (6mm) : Arts, Crafts & Sewing
Pipe Cleaners	FES supply closets, dollar general/tree	$1.25	Pickup Product Page (dollargeneral.com)
Hole puncher	FES supply closets, Amazon	$4.11	Amazon.com : Officemate 1- Hole Punch, 5 Sheet Capacity, Silver (90091) : Arts, Crafts & Sewing
Laminator and laminating sheets	Utilize FES laminator, Target	$29.99 for personal Laminator machine $10.59- 25ct Laminator sheets	Scotch Thermal Laminator With 2 Starter Pouches 8.5" X 11" : Target Laminator Sheets : Target
Printed sight words	Link in the 'resource links' column		Printable sight words for kindergarten and 1st grade Site words - Google Docs

How to make:

1. Print out sight words from the link provided above and cut them out to make a rectangular shape.
2. Laminate the slips of paper (sight words) by putting them in 3 columns in the laminating sheet so that there is space on the right side of each word.
3. Cut out laminated sight words but on the right side of each word leave about <1in of lamination attached to the word.
4. In the open laminated space of each sight word, use the hole puncher to make a hole in that space.
5. Cut pipe cleaners so that they are about 5 inches long and attach them to the laminated sight words. The best way to attach the pipe cleaners to the sight words is to put one end of the pipe cleaner through the hole made by the hole puncher and twist that same end around the remainder of the pipe cleaner to secure it.
6. Find a container with a secure lid for the letter beads.

2-Handed Block Stacking

Materials included:

- 10 wooden sticks
- 30 wooden cubes
- 7 block stacking pattern cards

How to use: With one chopstick in each hand, have the student's hands work together to pick up wooden cubes. Move the blocks into a bowl on the table. This is kind of like a, "Minute to Win it," game.

What does it work on? Bilateral coordination, hand- eye coordination, concentration, following/recreating patterns.

How does it help with school? Holding paper with the helper (non-dominant) hand during handwriting and using scissors. Better control of small movements to create letters/words.

Make it harder: If moving the cubes to the bowl is too easy, create an extra challenge of stacking the cubes on top of one another to make a tower! See how many you can stack before it falls. OR you can have the student follow the block stacking pattern from the different cards included.

(Larson, 2023)

Make it easier: If the chopsticks are difficult to use to pick up the cubes, use plastic spoons instead to practice picking up the cubes because they have more surface area/scoop shape to pick up objects.

(Larson, 2023)
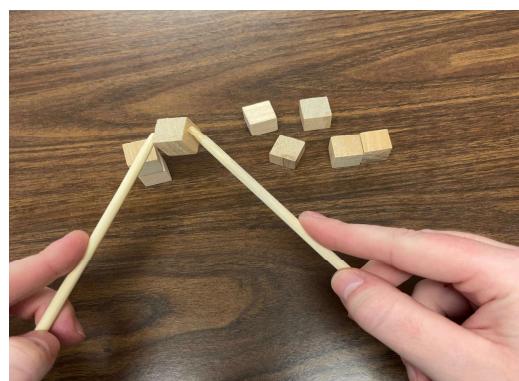
Evidence citation: (Abe et al., 2022)

2-Handed Block Stacking

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Wooden sticks	Target or restaurant with chopsticks (any restaurant where chopsticks are used)	$2.00	50ct Bamboo Chopsticks - Room Essentials™ : Target
Wooden blocks	Dollar general/tree	$1.25	Crafters Square Wood Craft Cubes, 36-ct. Packs | Dollar Tree
Block stacking cards	Link in the 'resource links' column		Printable Block stacking card set Block stacking cards - Google Docs

How to make:

1. Print and cut out the 7 block stacking cards (these can either be in color or black/white)
2. Optional: laminate the 7 cards after cutting them out to make them durable during use.
3. Put the wooden blocks into a container with a lid
4. Break chopsticks apart if not already detached to make 2 wooden sticks.
5. Place cards, wooden blocks and wooden sticks together for use.

Hungry Hungry Tennis Ball

Materials included:
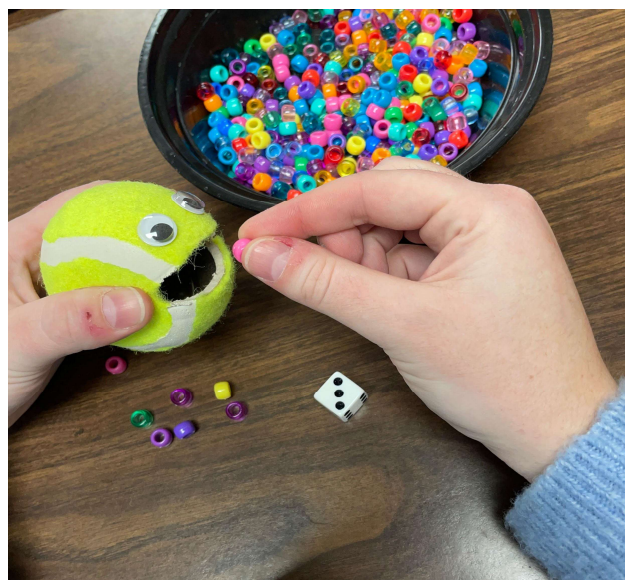- 5 Mr. Tennis Balls
- 10 die
- Container of beads

How to use: Roll 2-3 die at the same time and add the numbers together to find out how many beads Mr. Tennis should eat. Hold the tennis ball in one hand and squeeze inward to open the mouth. Place the number of beads shown on the dice into Mr. Tennis's mouth and see how many he can fit after rolling the dice a couple of times! To remove beads, open Mr. Tennis's mouth really wide and turn his mouth towards the table to have beads fall out. Place beads back in the container for the next person.

What does it work on? Hand strength (specifically for hand arches, which are necessary for gripping a pencil and stabilizing objects in the hand), pincer grasp, manipulating small objects, bilateral coordination, counting and adding.

How does it help with school? Math skills, handwriting, scissor use, opening containers like milk cartons at lunch.

Make it harder: Roll 3-4 die at the same time and add all the numbers up as fast as you can and feed Mr. Tennis Ball that number of beads. If the beads are difficult to hold, use larger objects like coins or buttons first before using beads to feed Mr. Tennis Ball.

Make it easier: Skip rolling the die and practice feeding Mr. Tennis ball with one hand holding the beads and the other keeping Mr. Tennis Ball's mouth open. Take breaks in between squeezes to open his mouth or switch which hands so that the other hand squeezes and the opposite feeds.

(Larson, 2023)

Evidence citation: (Abe et al., 2022)

Hungry Hungry Tennis Ball

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Tennis balls	Five below	$5.00 for 8 balls	Outdoor Games & Yard Toys | Five Below | let go & have fun
Googly eyes (optional)	Dollar Tree	$1.25	Crafter's Square Plastic Googly Eyes, 125-ct. Packs | Dollar Tree
Strong glue (if using googly eyes)	Target	$5.69	Gorilla Glue 10g Super Glue Clear : Target
Beads	Dollar Tree	$1.25	Crafter's Square Plastic Pony Beads, 400-ct. Packs | Dollar Tree
Die (10)	Dollar Tree	$1.25	Classic Games Dice, 10-ct. Packs | Dollar Tree

How to make:

1. With a sharp knife, cut a straight line through the tennis ball's outer shell that is about 1 in long. You should be able to the inside of the tennis ball if done correctly.
2. Optional: add eyes to the tennis ball using glue and googly eyes (leave tennis ball overnight to allow time for eyes to fully dry) OR use a sharpie and draw eyes onto the tennis ball above the mouth to make a face.
3. Place beads and die into a container with a lid.
4. Place completed tennis balls, beads and die together in a bag for use.

Letter Finder Tennis Ball

Materials included:

- 5 letter finder tennis balls
- Printed Sight Words

How to use: Have the student hold the Letter Finder Tennis Ball in one hand and present sight words to the student. While holding the ball in one hand, turn, rotate or flip the ball to find the different letters to spell the sight word. When a desired letter is found, have the student use their thumb to point to the letter to indicate it is the letter they choose. Continue the process of finding the different letters until the sight word is completely spelt.

What does it work on? Hand manipulation, hand strength, visual scanning, spatial orientation, form constancy (recognizing letters when in different fonts, sizes, orientations).

How does it help with school? Letter recognition, spelling, writing, manipulating objects with one hand (pencil grasp, picking up small objects).

Make it harder: Use longer sight words for the student to spell, increasing the number of times they have to rotate/manipulate the ball in their hand to complete a word. Another way to make it harder is to have the student manipulate the ball in their non-dominant or non-writing hand.

Make it easier: If the student is struggling with manipulating the ball with only one hand, they can use both hands to turn/rotate the ball. This still works on hand manipulation skills, and even introduces bilateral coordination! The visual scanning and word recognition will still be worked on this way as well.

Evidence citation: (Cahill & Bazyk, 2020)
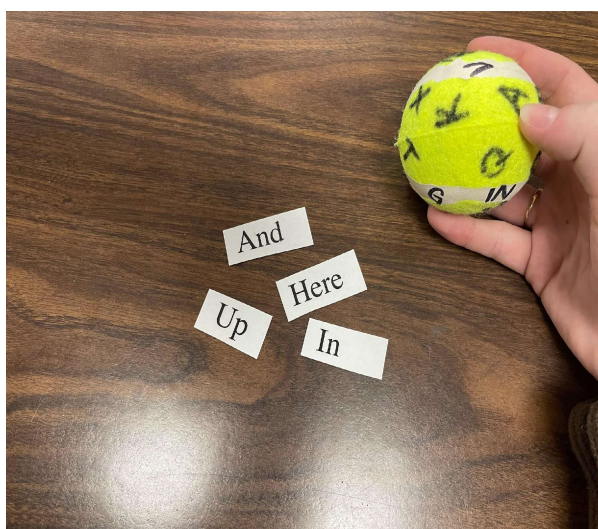
(Larson, 2023)

Letter Finder Tennis Ball

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Tennis balls	Five below	$5.00 for 8 balls	Outdoor Games & Yard Toys | Five Below | let go & have fun
Sharpie	FES supply closet, Dollar Tree	$1.25	Sharpie Fine-Point Black Permanent Markers | Dollar Tree
Printed sight words	Link in the 'resource links' column		Printable sight words for kindergarten and 1st grade Site words - Google Docs

How to make:

1. Using a sharpie or permanent marker, write all 26 letters of the alphabet randomly on a tennis ball. Make sure to try and have the letters evenly distributed around the ball as to not leave large empty spaces.
2. Print and cut out sight words to make paper slips that can be drawn from a bag. Optional: laminate the sight words after cutting them out to make them more durable during use.
3. Place tennis balls and sight word slips of paper into a container/bag to be ready for use.

Pom Pom Potion

Materials included:

- 6 test tubes
- Bag of assorted colored pom poms
- 6 tweezers
- 12 "recipe" (color pattern) cards

How to use: Using the tweezers, pick up the pom pom balls and put them into the tube. Instruct the students to hold the tweezer using their thumb, pointer and middle finger in a tripod grasp (this is pictured to the right). To help remind students to use the tweezers, tell them, "only touch the ingredients with the tweezers." Remind students to follow the color pattern on the cards to, "follow the potion recipe." After all pom poms are put into the tube, have the student screw the cap on and shake to, "mix up the ingredients." Then unscrew the cap and dump out the pom poms for the next person to use and continue with a new pattern on another card.

(Larson, 2023)

What does it work on? Bilateral coordination, hand strength, hand grasp for screwing/unscrewing lids, recognizing/following patterns, sequencing steps.

How does it help with school? Hand strength for handwriting, following a pattern with visual guides, and helps to improve math skills.

Make it harder: Test out the student's memory! Spend 30 seconds memorizing the color pattern on the card and then hide the card so the student cannot see it. They will try their best to put the pom poms in the correct order and check the card afterwards to see if they got the pattern right.

Make it easier: If using the tweezer to pick up pom poms is difficult, have the student use their fingers to pinch them (with the thumb and pointer finger) and place them in the tube following the color pattern. Only have one card out at a time and also have a smaller pile of colored pom poms to choose from to prevent the student from being overwhelmed.

(Larson, 2023)

Evidence citation (Abe et al., 2022; Pellissier, 2022)

Pom Pom Potion

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Plastic test tubes	Amazon	$16.99 for 18	DEPEPE 18pcs 115ml Clear Flat Plastic Test Tubes with Screw Caps 30 x 180mm with 3 Funnels and 1 Brush, Large Test Tubes Containers for Bath Salt Candy Storage: Amazon.com: Industrial & Scientific
Tweezers	Amazon	$12.99 for 12	Learning Resources Jumbo Tweezers, Sorting & Counting, Preschool Science, Homeschool, Toddler Fine Motor Skill Development, Set Of 12 (amazon.com)
Pom poms	Dollar Tree, Hobby Lobby	$1.25	Crafter's Square Multicolored Craft Pom-Poms, 80-ct. Packs | Dollar Tree
Recipe cards	Link in the 'resource links' column		Pom Pom potion - Google Docs

How to make:

1. Print and cut out the recipe cards from the link provided above (these have to be in color). Cut out the test tube images so they are rectangular in shape
2. Optional: laminate the recipe cards to make them more durable during use.
3. Put 6 tweezers, 6 test tubes (with their caps), colored pom poms and recipe cards into a bag for use.

Jellyfish Cutting

Materials included:

- Square construction paper (with spiral-like pattern)
- Scissors

How to use: Have the student start on the outside of the spiral or edge of the paper. Cut along the lines with the scissors to begin making a jellyfish-like figure. Have the student continue cutting on the line and using the other helper hand to turn the paper until the student reaches the center of the spiral.

(Larson, 2023)

What does it work on? Hand strength and coordination for cutting intricate and small designs, bilateral coordination (turning/orienting the paper to make it easier to cut).
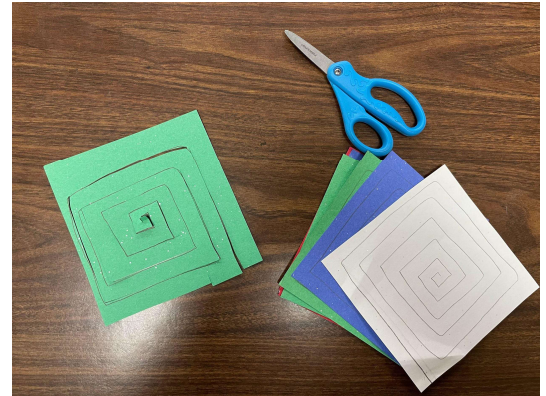
How does it help with school? Cutting paper fluidly and on the lines of crafts/projects.

Make it harder: Make the spirals closer together and the lines thinner (drawn on with pencil) so the student must work harder to stay on the lines of the spiral.

Make it easier: Make the spirals farther apart from one another leaving more space in between the lines. This will make the end product have thicker parts. Also drawing on thicker lines (with a marker or sharpie) will make it easier for students to follow and stay on the lines.

Tip: Thicker paper slows the student down when they are cutting and helps them to focus on the accuracy of the cutting vs the speed.
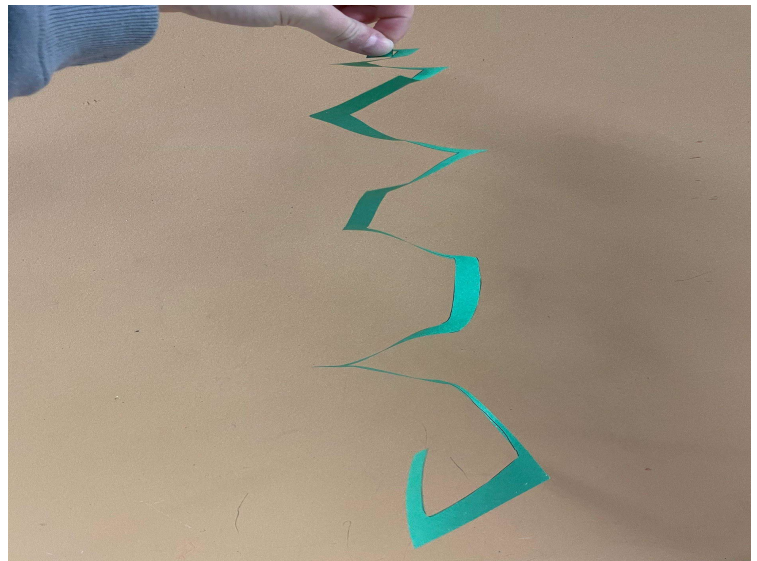
Evidence Citation: (Strooband et al., 2020)

Jellyfish Cutting

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Colored construction paper	FES supply closets, Amazon	$6.59	Tru-Ray Construction Paper P103031, 10 Classic Colors, 9" x 12", 50 Sheets (amazon.com)
Scissors	FES supply closets		
Writing Utensil (pencil, marker)	FES supply closets		
Ruler	FES supply closets		

How to make:

1. Using a writing utensil, ruler and scissors, create 5x5 squares out of the construction paper. The writing utensil is helpful for marking 5 inches.
2. Cut out the 5x5 inch squares in various colors
3. Draw a square spiral like shape on the square, starting on the outer part of the square and continue to the middle until it becomes too small to continue. Follow the picture of the completed product for an example.
4. To change the difficulty of the activity, use a pencil to make the lines thinner and a thicker marker like a sharpie to make the activity harder.
5. Make a jellyfish project yourself to show students as an example and keep it with the remainder of the squares in a bag.

Save the Animals

Materials Included:

- 4 plastic animal toys
- Rubber bands
- Twisty ties

How to use: Present the student with an animal toy that has been wrapped up in rubber bands, twist ties and/or clips. Have the student work towards, "freeing," the animal by undoing the rubber bands and removing the other fasteners. When the animal is free, have the student put the rubber bands and fasteners back onto the animals for the next person to use.

What does it work on? Finger strength/manipulation, pincer grasp, spatial orientation (to remove rubber bands from around the animal), problem solving.

How does it help with school? Handwriting, picking up small objects, manipulating clothing/snow gear, undoing knots or tangles in i-pad charging wires/shoe laces.

Make it harder: Add more rubber bands to the animals. Wrap the rubber bands/twisty ties around the animals more times and more intricately to have the student solve untangling the animals.

Make it easier: Add less rubber bands/twisty ties to the animals. Make the untangling process easier by wrapping the bands around legs, trunks or outer parts of the animal that are easy to access.

(Larson, 2023)

Evidence citation: (Abe et al., 2022)

Save the Animals

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Plastic Animal Toys	Five Below, old toys (doesn't have to be animals; could be action figures or other plastic toys).	$5.00 $1.25	Action Figures & Sets | Five Below | let go & have fun Small Toy Wild Animals for Kids, 8-ct. Packs | Dollar Tree
Rubber bands	FES supply closest, Dollar General	$1.00 $1.00	Office Hub Rubber Bands, 1.25 Oz (dollargeneral.com) Studio Selection Black Rubber Bands, 500 Pieces (dollargeneral.com)
Twisty ties	Amazon	$7.99	Otylzto 1500pcs 4" Kraft Paper Twist Ties for Treat Bags (amazon.com)

How to make:

1. Wrap 2-3 rubber bands around the animal/action figure toys. The rubber bands can be wrapped over each other, wrapped tightly or loose. Depending on the student and their ability level, you can change the difficulty level by how you wrap the rubber bands and the amount that you use.
2. Wrap the twisty ties around the narrow parts of the animal/action figure toys. (i.e., legs, arms, trunks).

Hair Tie Hands

Materials included:

- Hair ties (10 different colors)
- 16 hand replication cards

How to use: Following the picture of the hand on each replication card, place the same-colored hair ties on the fingers in the same location to copy the picture. Play a game by seeing how many you can copy!

What does it work on? Body awareness (knowing which fingers to place hair ties on), following patterns, pincer grasp, sequencing steps.

How does it help with school? Following patterns can help with math skills, being aware of the body (specifically hands and finger location) and location of objects near/on the body.

Make it harder: Take 30 seconds to memorize the pattern on the card then hide the card so the student cannot see it. Have the student try their best to recreate the picture of the hand on their own hand and check the replication card afterwards to see if they are correct with their hair tie placement.

Make it easier: Have only one card in front of the student to look at so they do not become distracted with other cards around them. Also, only have the number/color of hair ties the student needs to replicate the picture available to them to help them complete the pattern on their hands more successfully.

(Larson, 2023)

Evidence citation: (Scheiman, 2020)

Hair Tie Hands

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Hair ties	Amazon, Target, Dollar General	$5.99	100 Pcs Baby Hair Ties, Seamless Cotton Toddler Hair Ties for Girls and Kids, Multicolor Small Soft Hair Elastics Ponytail Holders(10Colors) (amazon.com)
Hand replication cards	Link in the 'resource links' column		https://drive.google.com/file/d/1vIxjD2gmqysKmbWYb41Iear9yd7QHd6D/view?usp=share_link

How to make:

1. Print out the hand replication cards using the link provided in the resource link column.
2. Color the blank bands found on the hand cards random colors (preferably colors that are the same as the hair ties you have available). Use 5-6 different colors to make patterns more varied.
3. After coloring, cut out each hand replication card (8 cards).
4. Optional: Laminate the hand replication cards to make them more durable during use.
5. Collect correlating colored hair ties to place into a bag with the completed cards. There should be about 4-5 of each colored hair tie.

Shoe Laces

Materials included:

- 8 cut out shoes
    - 3 with regular shoe laces
    - 5 with pipe cleaner shoe laces

How to use: Place the cutout shoes on top of the table when first beginning to learn shoe tying. Having the shoe on the table when first learning to tie is easier for students. When students have learned the basic steps of shoe tying, they then can move to the ground and imitate tying their shoes by stepping on the cut out to continue learning. Use the shoes to demonstrate and teach shoe tying.

What does it work on? Pincer grasp, following steps/sequence, hand/finger manipulation, bilateral coordination, problem solving.

How does it help with school? Shoe tying, manipulating small objects, following multi-step directions.

Make it harder: Use the shoe cut outs with the regular laces AND laces that are the same color. Laces that are the same color can make it challenging to know which lace is which, but is a great way to continue mastering shoe tying.

(Larson, 2023)

Make it easier: Have the student start with the shoe cut out on the table top so they can work with it while sitting down. Have the shoe facing them as if they were tying their own shoes. If handling regular shoe laces is difficult, have the student start with the pipe cleaner laces. Pipe cleaner laces keep its shape of the, "bunny ears," or twists the student makes during each step so the laces don't untangle during the steps of shoe tying.
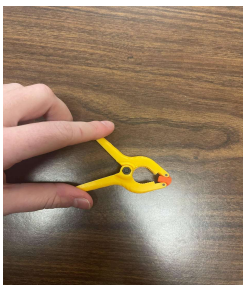
Tip: use a clamp (shown below) to help hold the shoe in place while the student practices.

(Larson, 2023)

(Larson, 2023)   (Larson, 2023)

Evidence citation: (Silverman et al., 2021)

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Shoe Laces

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Shoe cutouts	Link in the 'resource links' column		Printable shoe outlines Shoe lacing - Google Docs
Cardboard	FES supply closet, Amazon	$4.99	Amazon.com: 10 EcoSwift 8.5x11 Chipboard Cardboard Craft Scrapbook Material Scrapbooking Packaging Sheets Shipping Pads Inserts 8 1/2 inch x 11 inch Chip Board
Strong glue	Target	$5.69	Gorilla Glue 10g Super Glue Clear : Target
Hole puncher	FES supply closets, Amazon	$4.11	Amazon.com : Officemate 1- Hole Punch, 5 Sheet Capacity, Silver (90091) : Arts, Crafts & Sewing
Scissors	FES supply closets		
X-acto knife	Walmart	$4.14	X-Acto No.1 Basic Light Duty Knife, 1 Each - Walmart.com
Shoe laces	Dollar General, Amazon	$2.50	Product Search (dollargeneral.com)
Pipe Cleaners	FES supply closets, dollar general/tree	$1.25	Pickup Product Page (dollargeneral.com)

How to make:

1. Print out shoe cutouts. Optional: color them.
2. Cut out the shoe cutouts.
3. Optional: Laminate them to make them more durable during use.
4. Using a pencil, trace the shoe cutout on cardboard to replicate the outer shape of the shoe and cut out the shoe shape from the cardboard.
5. Punch 8 holes into the shoe where the shoe laces will eventually go.
6. Place the shoe cutout on the shoe shaped cardboard and mark with a writing utensil where the 8 holes are located onto the cardboard.
7. Use the X-acto knife to cut out the 8 holes from the cardboard.
8. Glue the shoe cutout onto the shoe shaped cardboard, make sure to line up the 8 holes so that a shoelace can be laced through.
9. Tie two different shoe laces together (you may have to cut each in half to make them an appropriate length) and lace them through the shoe cutout and cardboard.

Clay Writing

Materials included:

- 5 plates with clay
- 6 sticks (could also use pencils)
- 1st grade sight word cards
- Kindergarten sight word cards
- Addition and Subtraction cards

How to use: Unhook and spin the top plate to the side to expose the clay on the bottom plate. If there are any words or markings still on the clay, use your fingers to push/smash the clay around to, "erase," the markings until the surface is smooth.

To begin writing, take the stick in your writing hand and choose a word to write. Just how you would write on a piece of paper, write the word in the clay using the chopstick as a pencil. Erase the word by smashing the clay around with your fingers and start a new word.

What does it work on? Pencil grasp, hand/finger strength, letter formation, number formation.

How does it help with school? Handwriting skills, math skills. Writing in clay creates more resistance against the hand when making the letters/numbers, assists with muscle memory of the hand.
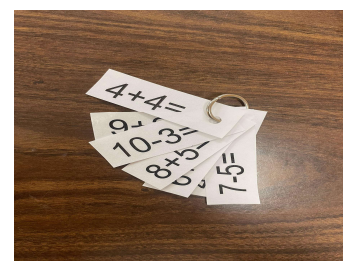

(Larson, 2023)

Make it harder: Try to fit as many words onto the clay surface as possible before having to erase the words for more room. This will work on the students' ability to write small and keep letters within words grouped together. Also, have students practice spelling sight words without looking at the word on the cards as they write in the clay.

The student can also work on their addition and subtraction skills by writing the answer of a math flashcard into the clay.

Make it easier: If the student is having difficulties with writing in the clay, provide the student with a sharpened pencil to make writing in the clay easier. Have only one sight word card in front of the student at a time so they do not get distracted by other word cards.

(Larson, 2023)

Evidence citation: (Abe et al., 2022; Cahill & Bazyk, 2020)

Clay Writing

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Paper plates	FES supply closet, Dollar Tree	$1.25	The Home Store Ultra Paper Plates, 10-ct. Packs | Dollar Tree
Wooden sticks	FES supply closet or restaurant with chopsticks	$2.00	50ct Bamboo Chopsticks - Room Essentials™ : Target
Play-doh clay	Target	$2.00	no dry clay from play doh - Bing - Shopping Available in the dollar section of Target.
Printed sight words	Link in the 'resource links' column		Printable sight words for kindergarten and 1st grade Site words - Google Docs Printable Math flashcards math problems 1st grade - Google Docs
Round head fasteners	Target	$5.09	Officemate Round Head Fasteners, Gold, 100/Box (99816) | Staples
Hole puncher	FES supply closets, Amazon	$4.11	Amazon.com : Officemate 1- Hole Punch, 5 Sheet Capacity, Silver (90091) : Arts, Crafts & Sewing

How to make:

1. Take a paper plate and smear the clay onto the paper plate. The play-doh should be about ½ cm thick.
2. Use a second paper plate to cover up the plate with the clay. Punch a hole towards the edge of the paper plate with the clay and the second paper plate.
3. Connect the two paper plates by flipping the second paper plate so its inverted.
4. Place a round head fastener through both holes and secure it.
5. Use a paper binder to close the two plates together on the opposite end from where the round head fastener is located to enclose the clay in between the plates.
6. Place the completed clay plates into a bag with printed sight words and wooden sticks for use.

Short Crayon Coloring/Writing

Materials included:

- 36 regular crayons cut in half (save the other half for other coloring activities)
- Or can use broken crayons that are already short

How to use: Have students use the short crayons to color and write rather than regular length crayons.

What does it work on? Using short crayons encourages students to only use their fingers in a tripod grasp and builds their finger/hand strength.

How does it help with school? Can help to increase writing and coloring endurance in the classroom and practice effective pencil grasps for future writing instruction.

Make it harder: Have the student write on construction paper to increase the resistance when writing. This will challenge the muscles of the hand even more to form letters and color.

Make it easier: Have the student take breaks in between words or have them use a regular sized crayon. Using a crayon (regardless of its length) will provide more resistance against paper compared to a marker or pencil that tend to glide easier. The resistance can help to develop and further strengthen hand muscles for coloring and writing endurance.
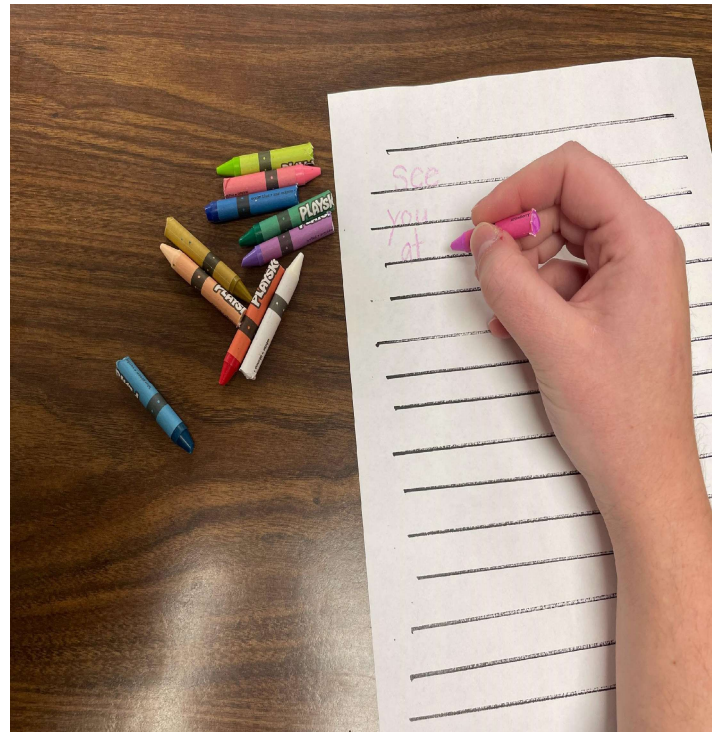
(Larson, 2023)

Evidence citation: (Cahill & Bazyk, 2020)

Short Crayon Coloring/Writing

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Crayons	Dollar Tree	$1.25	[Playskool Premium Quality Washable Crayons, 36-ct. Boxes | Dollar Tree](#)
Scissors	FES supply closets		

How to make:

1. Find already broken crayons around the classroom or make your own.
2. Cut the crayons in half to make them short, save the end with the pointed tip.
3. Save the other half of the crayon for other classroom crafts/activities.

Sight Word Bingo

Materials included:

- 6 First grade sight word bingo cards
- 4 Kindergarten sight word bingo cards
- Colored clay (clay is no-dry, so it should not dry out but still keep in it's containers)
- 1st grade and Kindergarten sight word flashcards

How to use: The student will be given a Bingo card filled with sight words and a container of clay. The clay will be used as the chips in the game rather than actual chips. To form small chips, have the student pick out a small piece of clay and roll it into a ball with both hands. A teacher or other student will pick a sight word, read it to the student, (if needed, lay it on the table for the student to view) and the student locate the sight word and press their ball of clay down on the space with the correlating sight word. You can play with different rules by either getting 5 in a row, filling all four corners or blackout where all the spaces get filled. Note: not all sight words will be on each board.

What does it work on? Word recognition, visual scanning, bilateral coordination (rolling clay into a ball), fine motor strengthening.

How does it help with school? Reading, writing, pencil grasp, using both hands at the same time for tasks.

Make it harder: If students are able to recognize and find the words easily when the sight word is placed on the table, only read the sight word out loud and have the student try to find it without visually copying the sight word. Students can also challenge themselves by making clay balls with only one hand vs using two hands, this will work on their hand manipulation skills.

Make it easier: If students are having difficulties scanning and finding different sight words, have the sight word card by their Bingo board for easy referencing and allow them more time to scan their board before moving onto the next word.
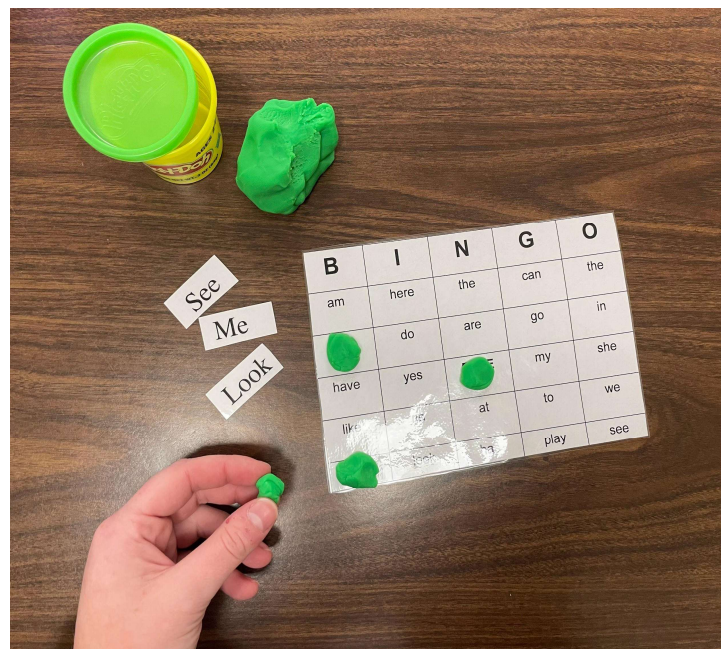
(Larson, 2023)

Evidence citation: (Abe et al., 2022; Scheiman, 2020)

Sight Word Bingo

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Printable Sight word boards	Link in the 'resource links' column		Sight Word Bingo - Google Docs
Play doh	Dollar Tree	$3.00	Play-Doh Super Silver Dough Packs, 6-ct. | Dollar Tree
Printed sight words	Link in the 'resource links' column		Printable sight words for kindergarten and 1st grade Site words - Google Docs
Laminator and laminating sheets	Utilize FES laminator, Target	$29.99 for personal Laminator machine $10.59- 25ct Laminator sheets	Scotch Thermal Laminator With 2 Starter Pouches 8.5" X 11" : Target Laminator Sheets : Target

How to make:

1. Print sight word Bingo boards, link available above. There are two boards for each grade, and will have to print out 1-2 copies of each to make 4-6 bingo boards.
2. Laminate the Bingo boards and cut them out to create a rectangular board
3. Print sight words and cut them out to make small slips that can be put into a container/bag and randomly drawn, link to list of words available above.
4. Optional: Laminate sight word slips to make them more durable during use.
5. Place clay, Bingo boards and printed sight word slips into a bag to have it ready for use.

Finish the Picture

Materials included:

- 20 drawing cards
- Washable markers
- Tip: markers come off the best with wet wipes

How to use: Take one of the drawing cards and a washable marker to try and complete the picture. Each card will be half done, leaving the other half completely blank for the student to finish as best as they can. The student can also color in the entire drawing after they have completed it on the blank side if they so choose.

What does it work on? Visual closure (finishing an image when only seeing parts of it), pencil grasp, fine motor control with drawing lines/shapes, spatial orientation.

How does it help with school? Recognizing words when only seeing parts of the word, can increase reading speed, coloring and drawing accuracy.

Make it harder: If the student is completing the picture with ease by mirroring the image, then encourage the student to add their own details to the side of the card they are completing. (i.e., add whiskers to the bunny or additional details to the leaves on the flower when drawing on their side.)

Make it easier: If students are having difficulty completing the picture accurately, then instruct them to only focus on the big shapes of the images and completing those first. Then once the larger outlines are done, then do one step at a time to draw in the details like the eyes, nose, ears of the images.

(Larson, 2023)

Evidence citation: (Scheiman, 2020)

Finish the Picture

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Drawing Cards	Link in the 'resource links' column		https://drive.google.com/file/d/1Lq F1NLnxDTpqmqzpfU2a-mX4v6a3Mb8l/view?usp=sharing More visual closure drawings - Google Docs
Washable markers	FES supplies closets, Dollar Tree	$1.25	Rainbow Washable Markers, 8-ct. Boxes | Dollar Tree
Wet wipes	FES supplies closets, Dollar Tree	$1.25	Aquarelle Antibacterial Wet Wipes, 40-ct. Packs | Dollar Tree
Laminator and laminating sheets	Utilize FES laminator, Target	$29.99 for personal Laminator machine $10.59- 25ct Laminator sheets	Scotch Thermal Laminator With 2 Starter Pouches 8.5" X 11" : Target Laminator Sheets : Target

How to make:

1. Print out drawing cards, there are two links available above.
2. Laminate the drawing cards and cut them out to make individual cards.
3. Place laminated drawing cards, washable markers and wet wipes into a bag for use.

Alphabet Sticks

Materials included:

- 52 thick popsicle sticks with half of letters on them

How to use: Place all of the sticks on the table top or the ground and spread them apart. Turn all the sticks so that the letters are facing up and are visible. Each stick has half of a lower- and upper-case letter on it, upper case will be at the top of the stick, lower case on the bottom part of the stick. The student will work towards matching up the sticks to their corresponding halves to complete the letter. Match up all the sticks until there are 26 letters formed.

What does it work on? Visual closure (being able to recognize a letter while only seeing part of it), letter recognition, letter formation, problem solving, spatial orientation (knowing how to change direction or position of sticks to make them fit).

How does it help with school? Reading (recognizing words faster), writing.

Make it harder: After the student has found all the pairs to create letters, have them practice spelling sight words using the letters that were made.

Make it easier: Provide the student with a smaller number of sticks, making sure prior the sticks have pairs in the group you are giving the student. When the student finishes the small group of sticks, continue to add more until all letters of the alphabet are found. Another way to make this easier is to provide the student with easier letters to identify and not as symmetrical, such as: 'Z', 'R', or 'G'.
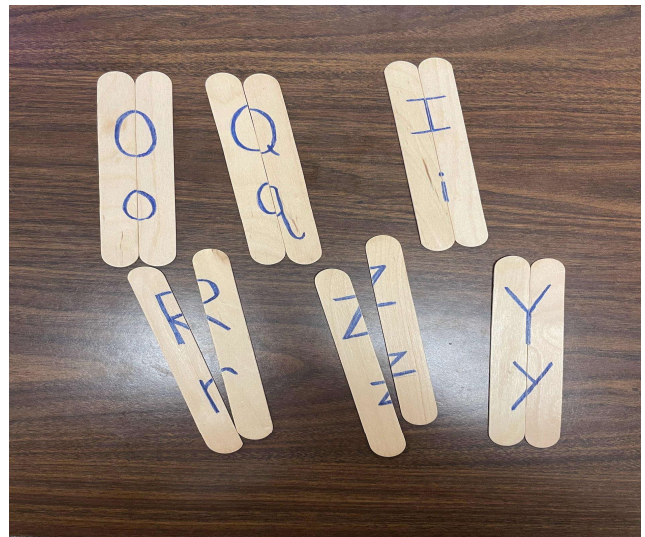
(Larson, 2023)

Evidence citation: (Scheiman, 2020)

Alphabet Sticks

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Thick popsicle sticks (tongue depressors)	FES supply closets,	$5.99	100 Piece Large Jumbo Wooden Craft Sticks (6" x 3/4"), Premium Natural Organic Wood for Waxing, Craft Project, Tongue Depressor, Popsicle, Ice Cream Stick ,Woodcraft, Paint Stirrer and Art - Apremont (amazon.com)
Sharpie/Markers	FES supply closets	$1.25	Rainbow Washable Markers, 8-ct. Boxes	Dollar Tree

How to make:

1. Take two popsicle sticks and place them next to each other vertically.
2. Use a marker or sharpie to write an uppercase and a lowercase letter on the two sticks so that when the sticks are pulled apart, they each have half or a portion of the letter on each.
3. Repeat steps 1-2 until all the letters of the alphabet are created, this should create 52 popsicle sticks when completed.
4. Place all the alphabet sticks into a bag for use.

Bug Catcher

Materials included:

- Toy bugs
- 5 scooper scissors

How to use: Spread the bugs out around the floor and have the student use the scooping scissors to collect the bugs and bring them to the container where the bugs are stored. The container can be placed in the middle of where all the bugs are located or on the side. Have the student crawl on their hands and knees to move around and collect the bugs until they are all picked up and put back into the container. Instruct the student to only pick up one bug at a time and bring it to the container before going to pick up another bug.

What does it work on? Hand strength and coordination (specifically muscles used to cut paper), gross motor activity endurance and coordination.

How does it help with school? Scissor cutting, increasing activity endurance for classroom games/physical education.

Make it harder: Try different animal crawls such as the crab, bear crawl, etc. Also spread the bug toys out farther so the student has more distance they need to cover.

Make it easier: Have the bug toys closer together or have them up on a table top in front of the student. The student can stand at the table or sit (could use a wobbly chair) while using their hand muscles to capture all the bugs and put them in a container on their side. To challenge the student during this, place the container on the opposite side of their dominant hand so the student crosses their midline when going to put the bugs in the container.

(Larson, 2023)

Evidence Citation: (Abe et al., 2022; Strooband et al., 2020)

Bug Catcher

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Toy bugs	Hobby Lobby, Amazon	$7.99	Insects Value Pack	Hobby Lobby	939041
Scooper Scissors	Amazon	$13.99	Amazon.com: Supvox 5pcs Handy Scoopers Bug Insects Catcher Scissors Tongs Tweezers for Kids (Blue, Pink, Orange, Yellow, Green Style Mixed) : Toys & Games

How to make:

1. Locate/purchase items listed above.
2. Place into a bag for use.

Finish the Sight Word

Materials included:

- Thick popsicle sticks with sight words
- Clothespins with letters

How to use: Take one thick popsicle stick and have it placed in front of the student to view (either on a table top or on the ground). Looking at the word, the student will decide what letter(s) is missing from the word. To complete the word, the student can grab a clothespin that has the desired letter on it and clip it onto the popsicle stick to finish the word. Note: some of the popsicle sticks will have more than one clothespin letter than can be added to it (i.e., "_ome" could be made into, 'some,' 'come,' or 'home.') To check answers or if the student is stuck, answers are written on the stick upside down. Encourage the student not to cheat and look before trying to complete the word on their own.

What does it work on? Hand strength, pincer grasps, visual closure (being able to complete a word without seeing all the letters), recognizing and forming words.

How does it help with school? Pencil grasp, reading, writing, spelling, creative thinking.

Make it harder: Try to make more than one word using the clothespin letters as mentioned before in the 'How to use," section. Other words that this can be done with are "t_o", making 'too,' and 'two.' Also "the_e," making 'there,' and 'these.' Add another step by having the student write out the word after they have made it using the popsicle stick and clothespins.

Make it easier: If a student is having difficulty, allow them to look at the answers prior and work on recognizing and locating corresponding letters. Once they have the letters, they can work on where in the word the letter goes while also working on their pincer grasp strength!
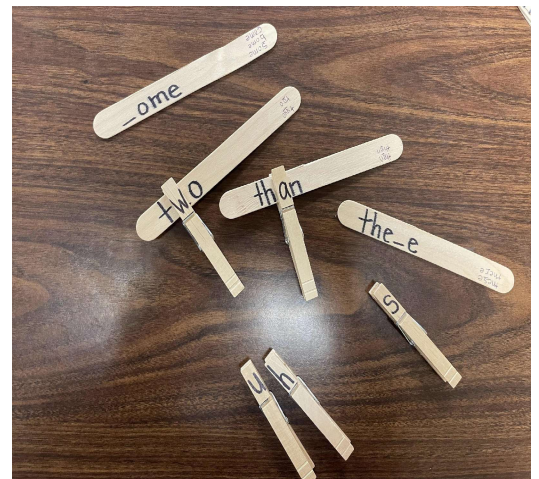
(Larson, 2023)

Evidence Citation: (Abe et al., 2022; Cahill & Bazyk, 2020)

Finish the Sight Word

Materials	Where to find/buy	Cost	Resource Links
Thick popsicle sticks (tongue depressors)	FES supply closets,	$5.99	[100 Piece Large Jumbo Wooden Craft Sticks (6" x 3/4"), Premium Natural Organic Wood for Waxing, Craft Project, Tongue Depressor, Popsicle, Ice Cream Stick ,Woodcraft, Paint Stirrer and Art - Apremont (amazon.com)](amazon.com)
Wooden Clothespins	FES supply closets	$1.25	[Essentials Wooden Clothespins, 36-ct. Packs	Dollar Tree]
Sharpie/Markers	FES supply closets	$1.25	[Rainbow Washable Markers, 8-ct. Boxes	Dollar Tree]

How to make:

1. Using a sharpie/marker, write the majority of a sight word on a thick popsicle stick (towards the left side of the stick) but leave 1-2 spaces of the word blank. In the blank space, draw in a horizontal line to showcase that there is a letter missing.
    (i.e., wat_r   the_e)

2. Whichever letter was missing from the word, write that letter on the front and back of a wooden clothespin towards the top. Make sure the letter is written so that it will be right side up when the clothespin is pinned in the spot where the letter is missing in the word.

3. Go back to the popsicle stick and turn in upside down so the written word is upside down. On the left side of the stick (opposite of where the sight word was written), write the entire sight word using a thin marker/pen and include the missing letter. This acts as an answer key for students who may be struggling.

4. Note: some of the popsicle sight word sticks will have more than one letter that would work to complete the word, so make sure to include ALL answers that could work with the word.

Play-Doh Treasure Hunt

Materials Included:

- Play Doh
- Toys bugs
- Buttons/beads
- White placemats
- Tweezers

How to use: Place the play-doh on the white laminate mat so that the doh does not stick to items on the table or floor. Inside the Play-dou will be, "treasure," (beads, button, bugs). The student will use either their hands/fingers or the tweezers to help dig out the treasure from the play-doh. When they have found an item in the play-doh, have them put it in the play-doh container so the item doesn't get lost. Once all of the treasure items have been found in the play-doh, instruct the student to hide the items back in the play doh using their fingers for the next person to use. Tell them to, "hide it very well so it is hard for the next person," this tends to get them intrigued with hiding the items deep in the play-doh.

(Larson, 2023)

What does it work on? Hand/finger strength, hand manipulation, visual scanning, stereognosis (knowing what an object is by only touching/feeling it rather than seeing it), sensory input.

How does it help with school? Handwriting, handwriting/coloring endurance, manipulating small objects, hand strength.

Make it harder: Have fewer and smaller objects hidden in the play-doh to challenge the student in searching. Smaller objects can include only the small beads. When there are smaller and less objects, this leaves more play-doh required for the student to move and manipulate to reach the desired items. Also challenging the student to only use the tweezers to find the objects rather than their hands.

Make it easier: Have more and larger objects hidden in the play-doh to make it easier for the student to find items. Bigger objects can include the bugs and some buttons. Have the student use their fingers rather than the tweezers to find objects so they can feel where objects are in their hands vs only using their visual sense to locate items.

(Larson, 2023)
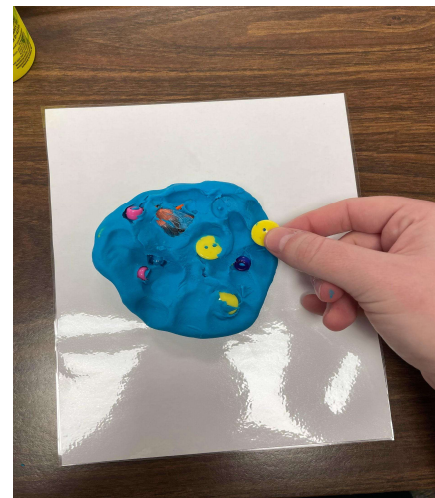
Evidence citation: (Abe et al., 2022)

Play-Doh Treasure Hunt

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Play doh	Dollar Tree, Five Below, FES supply closet	$3.00	Play-Doh Super Silver Dough Packs, 6-ct.	Dollar Tree
Toy bugs	Hobby Lobby, Amazon	$7.99	Insects Value Pack	Hobby Lobby	939041
Buttons	Dollar Tree, FES supply closet	$1.25	Crafter's Square Assorted Buttons, 90-ct. Packs	Dollar Tree
Beads	Dollar Tree	$1.25	Crafter's Square Plastic Pony Beads, 400-ct. Packs	Dollar Tree
Tweezers	Amazon	$12.99 for 12	Learning Resources Jumbo Tweezers, Sorting & Counting, Preschool Science, Homeschool, Toddler Fine Motor Skill Development, Set Of 12 (amazon.com)

How to make:

1. Put toy bugs, buttons and beads into the play-doh and bury them throughout the doh so they are hidden. You can add as many or as few items that you want to the play-doh.
2. Place the play-doh containing the hidden items into the original play-doh container for storage.
3. Put the contained play-doh and tweezers into a bag for use.

Spelling Legos

Materials included:

- Lego pieces with letters written on them
- 5 Sight word rings

How to use: Use the Lego letter pieces to construct different sight words that are written on the sight word cards. Just like writing words, students are encouraged to connect the Lego pieces in a way that will make tall letters like, 'l', 'k' or 'd' taller than the other letters. Short or small letters like, 'a', 's', or 'r' connected in the middle area of the word construction and low letters like, 'g', 'j' or 'y', are connected so their descending lines are below the middle area of the word construction. Look at the picture here to see how the alphabet would look when making each Lego letter tall, small and low.

Tip: Lego letter pieces connect when the prongs of the piece are facing to the <u>right</u>. So, a letter may look like a 'u' but when turned with the prongs facing <u>right</u>, the letter turns into an, 'n'.

What does it work on? Hand strength, pincer grasps, visual scanning, letter recognition, spatial orientation (having letters face the correct way), word formation.

How does it help with school? Pencil grasp, reading, writing, spelling, scanning for letters and words in texts.

(Larson, 2023)

Make it harder: Have students spell sight words without looking at the site word cards so they can be challenged with both choosing the correct letters and order, as well as connecting the letters correctly so tall, short and low letters are in the appropriate space. Also provide students with harder sight words if their current set is too easy to spell.

Make it easier: Have the student follow the sight word card and focus on them locating the letter and connecting them to other letters. If the amount of Lego letters in front of them is overwhelming, take out the Lego letters that are needed to create the word and have them look in that smaller pile for letters to spell one sight word.

Evidence Citation: (Abe et al., 2022; Cahill & Bazyk, 2020)
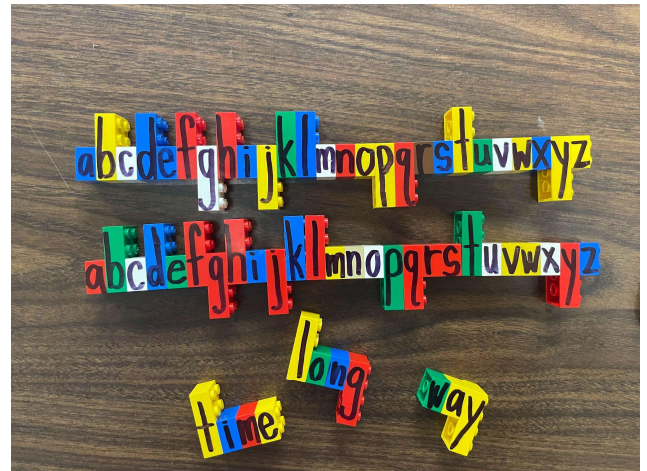
Spelling Legos

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Legos	Walmart	$15.99	LEGO Classic Creative Suitcase 10713 Kids Building Toy Creative Learning Blocks Age 4+ Toy Storage (213 Pieces) - Walmart.com
Printed sight words	Link in the 'resource links' column		Printable sight words for kindergarten and 1st grade Site words - Google Docs
Sharpie	FES supply closets		

How to make:
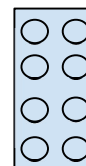
1. Collect basic Lego pieces that are 2 pegs tall and 4 pegs tall

2. The 2 peg Legos will be used for "small" letters (i.e., a, e, i, o, u, s, w, x, v)
3. The 4 peg Legos will be used for "tall" (l, k, b, d, t, f) and "low" letters (i.e., y, g, j, q, p).
4. Use the sharpie or permanent marker to write letters on each Lego piece. When you write letters on the pieces, on the pegs face to the right so that each piece can connect to each other when making a word.
5. Print out sight words, available in the link above for students to reference when spelling words.
6. Place the sight words and Lego letter pieces into a container for use.

Paper Hole Punch

Materials included:

- Dotted word sheets
- Sharp pencil

How to use: Take one of the dotted word sheets and place it flat on the floor where there is a carpet or rug material (shaggy carpet/rugs may be too soft and not work as well with this activity). Using a sharp pencil or colored pencil, have the student poke holes where there are dots on the paper. Have the student continue poking holes through the paper until all the dots have been made into holes. Encourage the student to turn the paper over to see the cool design that was made from the hole poking (it will be bumps with the same design from the front).
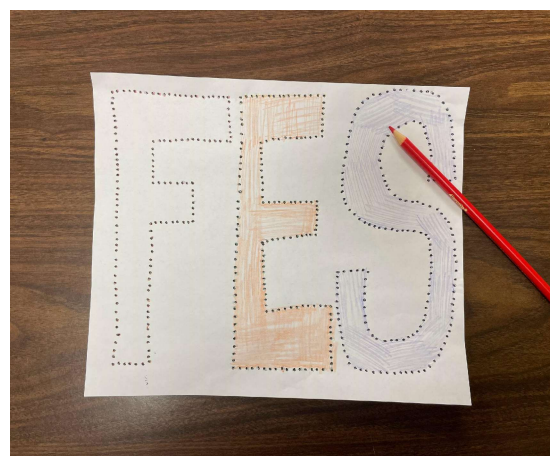
What does it work on? Hand strength, pincer grasps, visual scanning, hand-eye coordination, writing/drawing endurance.

How does it help with school? Pencil grasp, writing, drawing, coloring.
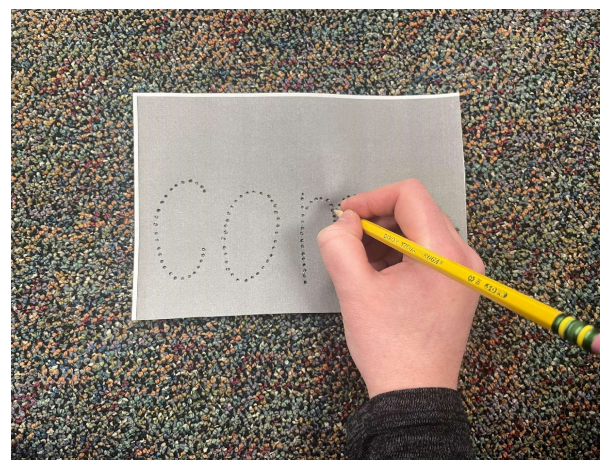

(Larson, 2023)

Make it harder: Have the student lay on their stomachs while completing the paper hole punching. This works on their abdominal strength and also helps them get closer to the paper for healthy posture rather than leaning forwards and looking directly down with flexed necks. Also have the student color in the words/designs after they have completed the hole punching with their pencils. This is a great time for students to practice coloring inside the line of designs because the holes/bumps made during the hole punching will give them a tactile guide as to where to stop when getting close to the lines.

Make it easier: Provide the student with a simple design as shown to the right. They can still work on their pencil grip and also motor control when creating holes in the lines of the designs/words.

Evidence Citation: (Abe et al., 2022)

(Larson, 2023)

Paper Hole Punch

Materials	Where to find/buy	Cost	Resource Links
Dotted word/letter sheets	Link in the 'resource links' column		(FES Letters) https://drive.google.com/file/d/14AoHMggRt7oHbxKYKya1d-qrAu2TiLvU/view?usp=sharing (Sight words) https://drive.google.com/file/d/1MpJrSVMjieF5ZnY4e7W66SnFoURMLMAx/view?usp=sharing
(colored) pencils	FES supply closets		

How to make:

1. Print out paper hole punch pages, available in the link above.
2. Locate colored or regular pencils, make sure they are sharp as it makes it easier for students to punch holes through the paper.
3. Place hole punch pages and pencils into a bag for use.

Crazy Hair

Materials included:

- 5 crazy hair cutouts
- pencils, cotton swabs, beads

How to use: Using the Crazy Hair cutouts, students can hold it to style the pipe cleaner hair or lay it on a flat surface to style the yarn parts of the hair. To style the pipe cleaner hair, students can use various materials including cotton swabs, pencils, different sized markers or their fingers to create a design. The yarn hair can be styled multiple ways as well, like braided, twisted, loose knots, etc. Beads can also be added to either the pipe cleaners or yarn hair to make a design.

What does it work on? Fine motor control, hand manipulation, bilateral coordination, sequencing steps (if the student is braiding), hand-eye coordination.

How does it help with school? Pencil control, manipulating small objects, following multi-step directions, completing crafts independently.

Make it harder: If a student would like a challenge, they can learn to braid if they do not already know. Instructional sheets are included in the activity that show how to braid via colored diagrams. Have the student try different patterns on the pipe cleaner hair as well as different twists/braids in the yarn hair. If there are hair ties available, have the student practice tying the yarn hair in a ponytail.

Make it easier: Have the student only focus on the pipe cleaner hair and creating designs with those strands. The yarn hair can be moved underneath the paper face or clipped out of the way. Also have the student decorate the hair with beads for added pincer grip practice!

Evidence Citation: (Abe et al., 2022)

(Larson, 2023)

Crazy Hair

Materials to make:

Materials	Where to find/buy	Cost	Resource Links
Face cut-out	Link in the 'resource links' column		https://drive.google.com/file/d/1-nXnsw1z5-eoXAWyE4heRmS4MaodoxgG/view?usp=sharing
Scissors	FES supply closets		
Yarn	FES supply closets, Dollar Tree	$1.25	Crafter's Square Acrylic-Polyester Yarn, 132 Yds.	Dollar Tree
Pipe cleaners	FES supply closets, Dollar tree	$1.25	Pickup Product Page (dollargeneral.com)
Paper plates	FES supply closet, Dollar Tree	$1.25	The Home Store Ultra Paper Plates, 10-ct. Packs	Dollar Tree
Strong glue (gorilla glue)	Target	$5.69	Gorilla Glue 10g Super Glue Clear : Target
Beads	Dollar Tree	$1.25	Crafter's Square Plastic Pony Beads, 400-ct. Packs	Dollar Tree
Cotton swabs	Dollar Tree	$1.25	Assured Cotton Swabs with Colorful Plastic Sticks, 300-ct. Packs	Dollar Tree

How to make:

1. Print the face cut out, link provided above.
2. Cut the hair off of the face. Optional: color the skin of the face.
3. Optional but highly recommended: laminate the face as there will be a fair amount of glue used to apply the hair. Helps to stop glue leaking through the face.
4. Cut pieces of yarn that are about 5-7" long. Group them together so that there are three strings right next to each other. You can have multiple groups of yarn spread throughout the hair.
5. Cut pieces of pipe cleaner that are 5-7" long. These don't have to be grouped like the yarn.
6. Cut the paper plate so that it is about the size but a little bigger than the face cut out. Begin gluing the pipe cleaner and yarn onto the paper plate near the top where the hair will be. Remember to group the yarn into 3 strings and place the pipe cleaner/yarn hair so that about 1" in glued down to make it more durable during use.
7. Glue the face cut out on top of the paper plate and pipe cleaner/yarn hair as to sandwich the hair between the plate and face.
8. Let dry and cut off excess paper plate that is showing from behind the face cutout.

Questions to think about when using Occupational Therapy (OT) activities in the classroom...

Check boxes to answer

Questions	Yes	No	Sometimes
1. Are students engaged in the OT activities?			
2. Are the OT activities being used correctly? (correct tripod pinch on tweezers, following patterns, etc.)?			
3. Have the OT activities helped to engage students during free time (between school subjects) in a meaningful way?			
4. Are the OT activities appropriate methods for students to practice handwriting, spelling, reading and math skills?			
5. Are students showing improvements in their fine motor strength and coordination from using OT activities?			
6. Are students demonstrating improved visual perception skills (pattern recognition, solving puzzles, completing half missing words/pictures, etc.)?			
7. Are students willing to try activities that may challenge their current abilities?			
8. Are they working through the initial frustration that comes with learning something new?			
9. Are students benefiting academically from using OT activities?			

Answer Interpretations

If the majority of your answers above were, "**Yes,**" then it would be appropriate to continue using the activities with the student(s) as the activities are being observed as beneficial to students' academic and developmental growth.

If the majority of your answers above were, **"No,"** then the activities may not be appropriate for the student(s) at this time. There are many reasons for this including activities being too difficult or easy, and/or activities not sparking the interest of the student. This doesn't mean you have to totally discontinue the activities, but could try different activities and view the manual to see how each activity can be made easier or harder to better match the student's current abilities and interests.

If the majority of your answers above were, **"Sometimes,"** then continue using the activities and observe how student(s) are interacting with the activities until you are able to have a more defined, "Yes," or "No," answer.

References

Abe, T., Thiebaud, R. S., Ozaki, H., Yamasaki, S., & Loenneke, J. P. (2022). Children with Low Handgrip Strength: A Narrative Review of Possible Exercise Strategies to Improve Its Development. *Children*, *9*(11), 1616. https://doi-org.ezproxylr.med.und.edu/10.3390/children9111616

Brown, C., Stoffel, V., & Jaime Phillip Muñoz. (2019). *Occupational therapy in mental health: A vision for participation* (2nd ed.). F.A. Davis Company.

Cahill, S., & Bazyk, S. (2020). School-based occupational therapy. In J. C. O' Brien & H. Kuhaneck (Eds.), *Case-Smith's occupational therapy for children and adolescents* (8th ed., pp. 627–658). Elsevier.

Larson, S. (2023). *Occupational therapy activities for classrooms* [Personal Photograph].

Mills, C., Chapparo, C., & Hinitt, J. (2016). The impact of an in-class sensory activity schedule on task performance of children with autism and intellectual disability: A pilot study. *British Journal of Occupational Therapy*, *79*(9), 530–539. https://doi-org.ezproxylr.med.und.edu/10.1177/0308022616639989

Pfeiffer, B., Moskowitz, B., Paoletti, A., Brusilovskiy, E., Zylstra, S. E., & Murray, T. (2015). Developmental Test of Visual-Motor Integration (VMI): An effective outcome measure for handwriting interventions for kindergarten, first-grade, and second-grade students? *American Journal of Occupational Therapy*, *69*(4), 1–7. https://doi-org.ezproxylr.med.und.edu/10.5014/ajot.2015.015826

Scheiman, M. (2020). Vision Impairment. In J. C. O' Brien & H. Kuhaneck (Eds.), *Case-Smith's occupational therapy for children and adolescents* (8th ed., pp. 844–869). Elsevier.

Silverman, F., Knight, C., & Grasso, A. (2021). Efficacy of an intervention to teach zippering: A two-group control study. *American Journal of Occupational Therapy*, *75*(2), 1–9. https://doi-org.ezproxylr.med.und.edu/10.5014/ajot.2021.043190

Strooband, K., Rosnay, M., Okely, A. & Veldman, S. (2020). Systematic review and meta-analyses: Motor skill interventions to improve fine motor development in children aged birth to 6 years. *Journal of Developmental & Behavioral Pediatrics, 41* (4), 319-331. doi: 10.1097/DBP.0000000000000779.

Zoltan, B. (2007). *Vision, perception, and cognition: A manual for the evaluation and treatment of the adult with acquired brain injury* (4th ed.). Slack.

Terms and Definitions

Bilateral Coordination: ability to coordinate both sides of the body at the same time in a controlled and organized manner (Strooband et al., 2020).

Body Awareness: having connection and consciousness to one's own body (Strooband et al., 2020).

Concentration: focusing on a task and providing mental effort to complete an activity (Brown et al., 2019).

Endurance (handwriting/coloring): ability for the hands/fingers to grasp a pencil and maintain dynamic movements for long periods of time to complete drawing and writing tasks necessary for academic activities (Pfeiffer et al., 2015).

Fine Motor: coordination and movements of the small muscles in the body. Typically involves muscles found in the hands and fingers (Strooband et al., 2020).

Finger dexterity: ability to grasp and manipulate small objects in the hands and finger tips in order to complete tasks such as shoe tying, buttoning a shirt, holding a pencil, scissor use, rolling play-doh into a ball, etc. (Strooband et al., 2020).

Form constancy: ability to recognize letters, numbers or shapes when in different sizes/styles/fonts/colors (Zoltan, 2007).

Gross Motor: whole body movements involving the large muscles found within the arms, legs, abdomen and back (Strooband et al., 2020).

Hand-eye coordination: how your hands and eyes work together to complete complex tasks (such as catching a ball, handwriting, drawing, scissor use) with speed and accuracy (Strooband et al., 2020).

Letter formation: ability to write letters from the alphabet correctly (Pfeiffer et al., 2015).

Letter recognition: ability to identify a letter that is being shown or find a specific letter among other letters in a group (Pfeiffer et al., 2015).

Pencil Grasp: (Strooband et al., 2020)

> **Tripod-** holding a pencil with the thumb, pointer and middle finger.

> **Quadripad-** holding a pencil between the thumb, pointer and middle finger while having the ring finger support the pencil.

Pincer Grasp: using the pads of the thumb and pointer finger to hold small objects like beads and string (Strooband et al., 2020).

Pre-planning: ability to plan out actions or strategies prior to completing a task or activity (Brown et al., 2019).

Sensory input: when the body, specifically our sensory organs like nose, ears, fingers, and eyes, receive outside stimuli from the environment (smells, noises, textures, pictures, videos, etc.) (Mills et al., 2016).

Sequencing: following steps, directions and patterns in the right order (Brown et al., 2019).

Spatial orientation: The ability to perceive the position of two or more objects in relation to oneself and others (Zoltan, 2007).

Stereognosis: ability to identify an object without seeing it but rather only using the touch sense to figure out what an object is (touching an object in your jacket pocket and figuring out its keys without seeing them) (Mills et al., 2016).

Sustained attention: maintaining attention for a long time; not becoming distracted from outside stimuli while performing a task (Zoltan, 2007).

Visual closure: ability to visualize a complete picture when only given part of the pictures or information. This also relates to being able to identify words while only seeing parts of the word (Zoltan, 2007).

Visual scanning: ability for the eyes to look around the environment to locate different objects (looking on a sheet of paper for a specific word, looking into a crowd of people for one person, finding differences between pictures, etc.) (Zoltan, 2007)

Working Memory: Temporary storage and manipulation of information; process that keeps information active for use at a later time (Zoltan, 2007).

Occupational Therapy in the Classroom

Introduction to Myself: Hello! My name is Sami Larson and I am an occupational therapy student at the University of North Dakota. As part of my doctorate studies, I am creating a program that will give students opportunities for additional hands-on learning activities within their school day. These activities will work on their hand strength, motor skills and visual perception; all of which are important for learning.

What is Occupational Therapy (OT)? Occupational therapy works with people of all ages and backgrounds to help them learn necessary skills to live, work and play independently.

How can OT help within the schools? OT works with teachers to help students reach their educational goals. Your students' teachers include hands-on learning in the classroom every day and OT is there to support students who may need more practice with certain skills. These skills include handwriting, recognizing letters, using scissors, large muscle coordination or manipulating small objects. The goal of OT is to help students successfully complete classroom activities on their own.

What will my student be doing? I will bring activities like weaving, using tweezers, scissor cutting, forming letters/words with various materials, buttoning, shoe tying, and beading to the classroom for students to use in small groups. Direct assistance will be given as needed to work on skills that are challenging for students. Some activities pictured below.
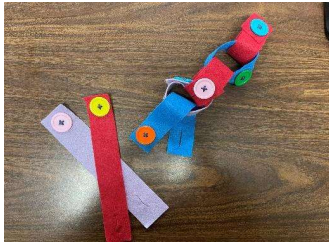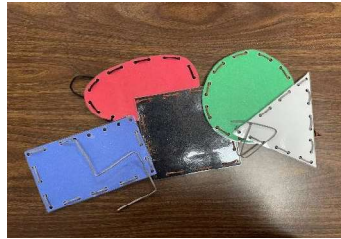
Button Links	Weaving	Spelling Beads

Activities will give students extra practice in:

Skill being worked on	Helps with these school activities
Strengthening small muscles in the hands	Pencil grasp, picking up small objects, using scissors
Using both hands at the same time	Cutting paper, using a zipper, buttoning clothes, shoe tying
Recognizing letters, writing and forming words	Reading, writing and spelling

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OT Stations Questionnaire

I want to start off by saying how grateful I am to have this opportunity to work with you and all of your students. Thank you so much for letting me come into your classrooms and share my activities and ideas! This has really made my final semester of my program so fun and enjoyable!

I have been working in your classrooms for about a month now and would like to know your thoughts on the program and its activities. Whenever you have the time, I would love to hear your feedback about these questions or any comments you wish for me to know.

1. What have you enjoyed about the program thus far?

2. What are some things you would change about the program (types of activities, set up of activities, classroom management, etc.)?

3. What activities could you see using in your classroom after I leave FES?

4. What activities do you think are <u>not</u> beneficial for your students' and their academic success?

5. How could you see your students benefiting from these activities being implemented into their everyday learning?

6. If I was able to create a way to have the program continue after I finish my time at FES, would that be of interest to you? Why or why not?

Additional comments:

You can send your completed questionnaire back to me via email at your earliest convenience. Thank you again for all of your support and taking the time to fill out some of these questions.

Occupational Therapy Activities Checkout List

Please erase your name, room # and 'date taken' when returning activities

Activity	Name/Room #	Date Taken (MM/DD)
Board Weaving 1		
Button Links 2		
Spelling Beads 3		
Save the Animals (Large) 4		
Save the Animals (Mini) 5		
Spelling Legos 6		
Crazy Hair 7		
Sight Word Bingo (K) 8		
Sight Word Bingo (1st) 9		
Finish the Picture 10		
Alphabet Sticks 11		
Finish the Sight Word 12		

Activity	Name/Room #	Date Taken (MM/DD)
Letter Finder Tennis Ball **13**		
Hair Tie Hands **14**		
2-Handed Block Stacking **15**		
Pom Pom Potion **16**		
Jellyfish Cutting **17**		
Shoe Laces **18**		
Hungry Hungry Tennis Ball **19**		
Paper Hole Punch **20**		
Clay Writing **21**		
Short Crayon Write/Color **22**		
Bug Catcher **23**		
Play-Doh Treasure Hunt **24**		