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Handwriting Development:
Educating Parents at Children's Playroom

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Introduction

This service project started as collaboration with Children's Playroom, a parent education and support program for families of young children. Children's Playroom is an opportunity for parents of children up to five years of age, to learn how to be effective parents in today's society through knowledge of positive parenting techniques, discipline skills, building parent/child relationships, exploring developmentally appropriate activities and developing realistic expectations for children ("Children's Playroom"). Through the use of a needs assessment, it was discovered that this program was seeking occupational therapy support to educate both parents and staff on pre-writing and handwriting readiness skills.

Handwriting in today's society is still the most immediate form of written communication. In a typical elementary school classroom, "Children spend 31%-60% of their school day performing handwriting and other fine motor tasks" (Feder & Mejnemer, 2007, p.312). Despite the use of computers and other advanced technology, handwriting remains an important developmental skill for a child to master. This complex occupational task has many underlying component skills that may interfere with handwriting performance. Fine motor control, bilateral and visual motor integration, in hand manipulation, proprioception, visual perception, sustained attention, and sensory awareness of the fingers are some of the component skills identified (Case-Smith & O'Brien, 2010). The development of handwriting competency and these underlying component skills is not only important in building a child's self esteem, but it is considered an essential ingredient for academic success.

Each state sets academic standards in regards to English language arts and mathematics, which every school district must implement within their curriculum. Children, at the end of each school year, are expected to meet these standards in order to pass each grade level. Students in

elementary school, however, are still growing and developing many of the underlying skills that are essential for successful handwriting performance. The state expectations placed upon children in elementary school, in regards to handwriting tasks, is much greater than what these children can realistically accomplish. Demands expected from a kindergarten child in the classroom are above the cognitive writing capacity developmentally that a five-year-old can handle. In addition, writing tasks that incorporate this higher level thinking such as composing opinion pieces and writing informative or explanatory texts also requires certain hand muscles and skills that are not yet fully developed in kindergarten children (“Kindergarten Debate”). This leaves many students struggling as they enter into kindergarten, because they developmentally cannot perform the necessary handwriting tasks. This then leads to poor academic achievement (Feder & Majnemer, 2007).

This project will research the state expectations of children’s handwriting performance, three local school districts kindergarten readiness checklists, typical developmental handwriting expectations, and the underlying component skills essential for handwriting performance. The purpose of this project was to educate the parents of Children’s Playroom on realistic handwriting expectations for their children, and to better enable them to explore developmentally appropriate activities to help in facilitating proper handwriting techniques for when their children reach school age.

Methodology

Before conducting a literature review, the authors first needed to examine what specific area of child development they would be educating the parents of Children’s Playroom on.

In order to evaluate the need for the parent education program and the specific individualized needs of their children, a needs assessment (see Appendix A) was developed and

administered by the authors of this study to the Morning Parents Program at Children's Playroom.

Before the creation and administration of the needs assessment, four Wednesday mornings were observed at Children's Playroom. Eight hours of observation were completed in total. During this time, child, parent and staff interactions and child behaviors were monitored. Possible areas of need, including attachment issues, sensory needs, fine motor deficits, social interaction, play skills, toileting, etc. were examined.

Participants who completed the needs assessment were chosen through convenience sampling. This included thirteen moms and one dad who were present for the Morning Parents Program on the Wednesday of the fourth observation visit.

The needs assessment was created in the form of a twelve question survey. Questions 1 through 10 were open-ended, and Questions 11 and 12 required parents to rank their answers. Demographic and background information was collected in Questions 1 and 2, including the age and gender of the child. Questions 3 through 10 asked parents for possible concerns regarding their child's development in specific areas. Question 11 asked parents to rank order which topics they know the most and least about. The last question of the survey asked parents to list two areas of child development from the list provided that they would like to know more about. The list included sensory processing, feeding, development of hand skills and pre-handwriting, transitions and separation anxiety, potty training, sleeping patterns and bedtime routines, and eating patterns.

Based off of the survey, handwriting was the primary area of interest among parents. Out of the fourteen parents, eight parents identified development of hand skills and pre-handwriting as their primary area of interest.

Literature Review

The needs assessment completed by the parents of the Children's Playroom suggested a need for pre-writing and handwriting skills. This prompted a review of the literature to gather information on pre-writing and handwriting skills of preschool and kindergarten children. When exploring the literature, the authors' focus was directed towards examining four areas: state expectations, local school district expectations, typical developmental handwriting expectations, and the development of handwriting skills.

State Expectations

The Common Core State Standards Initiative is an educational initiative in the United States that details what K-12 students should know in English language arts and mathematics at the end of each grade, and seeks to establish consistent educational standards across the states, as well as ensure that students graduating from high school are prepared to enter credit-bearing courses at two- or four-year college programs or to enter the workforce (About the standards, n.d.). For Pennsylvania, the Common Core was put into effect March 1, 2014 (PA core standards implementation, n.d.). According to Common Core, Kindergarteners should be able to do the following writing tasks:

1. Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., My favorite book is...);
2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic;
3. Use a combination of drawing, dictating, and writing to narrate a single event or

several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened. (“Kindergarten Debate”, n.d.)

After examining what the state expects children to accomplish in school, it is important to examine how these state expectations are implemented in local school districts around the Lancaster County, where children at Children’s Playroom would be or are already attending.

Local School District Expectations

Individual school districts are mandated to follow Common Core, but each incorporates the state standards in its own way. The Kindergarten Readiness Checklists of three local school districts, Lancaster, Hershey and Elizabethtown, were examined.

The Lancaster Kindergarten Readiness Checklist states that kindergarteners should begin to write some of the letters in his or her own name, begin to draw pictures to express ideas and tell stories, and recognize his or her own first name in print. (United Way of Lancaster County, 2010). The checklist for the Hershey school district is broken down into trimesters.

In Trimester 1, kindergarteners should demonstrate understanding of the organization and basic features of print. In Trimester 2, kindergarteners should be able to print many upper and lowercase letters. In Trimester 3, kindergarteners should produce and expand complete sentences in shared language activities, and use a combination of drawing, dictating, and writing to tell about a topic. (Hershey Early Childhood Center, 2014)

The Elizabethtown School District states that kindergarteners will understand that the organization and basic features of print contributes to effective reading. In addition, kindergarteners will know that words are separated by spaces in print. They will recognize and name all upper and lowercase letters of the alphabet (“Elizabethtown Area”, 2014).

The general consensus among the Lancaster, Hershey, and Elizabethtown school districts is that kindergarteners should be able to write upper and lowercase letters, begin to write one's own name, know basic concepts of print, and use drawings to express feelings in combination with writing.

Typical Developmental Handwriting Expectations

After researching the state and local school district expectations that are placed on kindergarteners, the typical developmental handwriting expectations of children were also examined. Findings revealed that many children begin to draw and scribble on paper shortly after they are able to grasp a writing tool. Handwriting development begins around 10-12 months with scribbling that becomes intentional (Schneck, 2010). Typically, children can draw a vertical line around 2 years, and can draw a horizontal line around 2 years and 6 months. Circles are drawn around 3 years of age. The ability to copy geometric forms, particularly the oblique cross, is seen as an indication of writing readiness in children, as it requires crossing the body midline and has been implicated as the root of many reversal problems (Schneck, 2010).

Children learn to print letters by first imitating geometric shapes. The imitation and copying of a cross is typically seen around 4 years of age (Schneck, 2010). Also at 4-5 years, children may be able to print some letters and numerals and may be able to print their own name. Five-year-olds should be able to draw a square, followed by the ability to copy a triangle, print his or her own name, and copy most upper and lowercase letters (Schneck, 2010). In her study, "An Investigation into the Developmental Course of Preschool/Kindergarten Aged Children's Handwriting Behavior," Tan-Lin examined the sequential stages of letter acquisition of 110 children between the ages of 3 and 5 years (Case-Smith & O'Brien, 2010). Children were observed copying numbers, letters, a few words, and a sentence on three separate occasions over

a period of 4 months. She found that children progressed through the following sequential stages of prewriting and handwriting: (1) controlled scribbles; (2) discrete lines, dots, or symbols; (3) straight-line or circular uppercase letters; (4) uppercase letters; and (5) lowercase letters, numerals, and words.

Handwriting studies of typically developing children in grades one through five (ages 6-11 years) have found that the quality of handwriting develops quickly during grade one (ages 6-7), and reaches a plateau by grade two (ages 7-8) (Feder & Majnemer, 2007). Further development is seen by grade three (ages 8-9) in that handwriting becomes automatic, organized, and is available as a tool to facilitate the development of ideas (Feder & Majnemer, 2007). Speed of writing develops in a somewhat linear fashion throughout primary school, and overall development of handwriting continues during the middle school years.

Development of Handwriting Skills

Children develop handwriting readiness skills at different ages, sometimes as early as four years old. For others, it may be around six years old. Regardless of the age it is accomplished, it is essential that children master these handwriting readiness skills before formal handwriting instruction begins (Case-Smith & O'Brien, 2010). Forcing children to begin handwriting before they develop these skills can result in poor writing habits and overall discouragement in the task itself. The six basic prerequisite skills that are essential to learn before handwriting begins include, "small muscle development, eye-hand coordination, the ability to hold utensils or writing tools; the ability to form basic strokes smoothly, such as circles and lines; letter perception, including the ability to recognize forms, notice likeness and differences, infer the movements necessary for the production of form, and give accurate verbal descriptions of what was seen; and orientation to printed language, which involves right-left

discrimination and visual analysis to determine when a group of letters forms a word,”(Schneck, 2010, p.557).

In order to master these handwriting readiness skills, there are a number of underlying performance components and sensorimotor systems that the child must be able to integrate in order to be successful. First is fine motor control, the coordination of muscles, bones, and nerves to produce small, exact movements (Kaneshiro & Zieve, n.d). One example is picking up a small item with the index finger (pointer finger or forefinger) and thumb. There are a number of developmental skills within fine motor control that contribute to the use of these small muscles that can also be greatly affected if children lack fine motor control.

In-hand manipulation, the process of adjusting objects in the hand after grasp, is a skill that requires the ability to control the arches of the palm. After grasping a pencil, the pencil must be shifted. This is a type of in-hand manipulation task defined as, “the linear movement of the tool by the fingers in order to adjust it for writing” (North Shore Pediatric Therapy, 2012).

Translation, another type of in-hand manipulation task is, “the ability to move an object from the fingers to the palm or the palm to the finger pads,” (“In-Hand,” 2012) as in pushing the fingers towards or away from the pencil’s point during handwriting. Rotation involves movement of the pencil around an axis, and is essential for turning the pencil from grasp position to placement for writing or erasing (“In-Hand, 2012).

Another fine motor skill essential for handwriting is bilateral integration, which is the ability to perform symmetrical and asymmetrical movements of the body during an activity (Exner, 2010). Handwriting consists mainly of asymmetrical movements, as the child must stabilize the paper with the non-preferred hand while holding the pencil with the preferred hand. Children with bilateral integration difficulties may be unable to dissociate symmetrical and

asymmetrical movements of the upper extremity required in handwriting. Along with this, general lack of fine motor control is implicated in common writing errors in studies of children in grade one, ages six to seven, and includes incorrect size and placement of letters and relationship of parts. Inadequate pencil grasp may result in children who have difficulty isolating and grading finger and hand movements. These children often use compensatory strategies such as locking the fingers into extension or fisting into flexion to stabilize their pencils (Exner, 2010, p.286-87).

Along with fine motor skills, another performance component that is essential for handwriting is visual motor integration. This is, “the ability to coordinate visual information with a motor response,” (Schneck, 2010, p. 386) allowing the child to reproduce letters and numbers for written school assignments. Visual-motor integration, closely related to hand-eye coordination, has a strong correlation with handwriting legibility. Important components of visual-motor integration that influence handwriting include visual closure, position in space, form constancy, and visual memory (Schneck, 2010, p. 386-87). Visual closure is an area of visual perception in which the child identifies which letters have been formed completely. Position in space refers to a child’s ability to recognize that there is spacing between letters of a word, between words, and within writing lines. Form constancy is the ability to recognize objects as they change size, shape, or orientation. This form of perception enables the child to discriminate between similar letters or words and may also impact handwriting performance. Visual memory is the ability to perceive and remember a sequence of objects, letters, words and other symbols in the same order as originally seen (Schneck, 2010b). Children with poor visual memory for letter sequences often have difficulty in handwriting and copying tasks.

The sensorimotor systems involved in handwriting include both proprioception and kinesthesia. The term proprioception is defined as, “the sense of the relative position of neighboring parts of the body and strength of effort being employed in movement,” (Parham & Mailloux, 2010, p. 348). The brain integrates information from proprioception and from the vestibular system into its overall sense of body position, movement, and acceleration. One example of proprioception in relation to handwriting is that children may press too hard when writing. This occurs either as a sensory seeking behavior, or as a compensation for their ability to modulate pressure, which typically matures around age six. Proprioceptive activities allow the muscles to “wake up” with heavy pressure. Resistive activities before and during a handwriting task can be beneficial for children who press hard on the pencil. Children will be getting the input they need and desire before they pick up the writing tool to write.

The term kinesthesia is defined as, “movement sense, but has been used inconsistently to refer to either proprioception alone or to the brain’s integration of proprioception and vestibular inputs,” (Schneck, 2010, p.386). Kinesthesia provides the ongoing error information and references for subsequent repetitions. In addition, it provides information about directionality during letter formation, type of pencil grip, and the amount of pressure applied to the writing tool. It also influences a child’s ability to write within the lines, enhances speed, and reduces the need to visually monitor the hand during writing (Schneck, 2010, p.557).

Other components of the sensorimotor system that influence handwriting performance include tactile perception and tactile defensiveness. Tactile perception is, “the brain’s ability to understand what the hands are feeling,” (Schneck, 2010, p.46-47). Inadequate tactile perception can interfere with the feedback used to guide motor tasks, such as writing with a pencil. Tactile defensiveness refers to, “a pattern of observable behavioral and emotional responses, which are

aversive, negative, and out of proportion, to certain types of tactile stimuli that most people would find to be non-painful,” (Schneck, 2010, p. 346-47). Tactile defensiveness can cause a child to press too lightly on the paper, limit the automaticity of handwriting, and therefore, limit the level of writing that can be achieved. These components of the sensorimotor system, as well as fine motor skills and visual motor integration, are all intrinsic factors that occur internally within the child.

In addition to intrinsic factors, there are also a number of extrinsic physical context factors outside of the child and within the environment that influence handwriting performance. One such factor is sitting position. Ideally, a child should be seated with feet flat on the floor, hips and back supported against the back of the chair, knees flexed to approximately ninety degrees, and elbows slightly flexed with forearms resting comfortably on the desk surface (Schneck, 2010, p. 573). A desk or chair height that is too low will encourage slouching forward. Conversely, when the chair and desk height are too high and/or feet are unsupported, written output may be compromised. Other important extrinsic factors include the type of writing instrument, the type of paper and its placement on the desk, environmental lighting/noise, blackboard distance, volume of handwriting the child is expected to complete, and the type and duration of handwriting instruction.

Another important component of the development of handwriting skills is the sequence of pencil grip progression. Children progress through this developmental sequence at different rates. Therefore, it is important for parents not to compare their child’s developmental rate to other children of the same age. As a child develops physically and takes part in gross motor activities such as crawling, climbing, and pushing, his/her shoulder and arm muscles will receive the strength needed for proper handwriting positioning and proper pencil grasp. An important

principle in understanding handwriting development is “big to small” and “proximal to distal,” meaning that children develop the larger muscles of the trunk and arms before the smaller muscles of the hands (“Fine Motor”, 2016). When children are forced to use a mature pencil grasp before their upper extremity muscles are ready to support them, fine motor problems can emerge. Problems may include holding the pencil in unusual ways, sloppy writing, and avoidance of drawing, writing, or coloring tasks.

The first grasp pattern in the sequence of pencil grip progression develops between the ages of one and two and is labeled as the “fisted grip/palmar supinate grip.” This grip is defined by using movement from the shoulder, and scribbling using the whole arm. In this grasp, children often hold their writing tool like a dagger. Next, comes the “digital pronate grasp” which typically develops between the ages of two and three. In this grasp, all fingers are holding the writing tool, but the wrist is turned so that the palm is facing down towards the page. Children begin to stabilize their shoulders, so that movement now comes mostly from the elbow. The “quadripod or four finger grasp” is characterized by four fingers holding the writing tool. The fingers begin to form the arc between the thumb and index finger, otherwise known as the web space. Movement occurs mostly from the wrist and the hand, and the fingers move as one whole unit. After this, the “static tripod” grip is typically seen between the ages of four and six. This is a three-finger grasp in which the thumb, index finger, and middle finger work as one unit (Schneck, 2010). Lastly is the the “dynamic tripod grip.” This grasp typically develops between the ages of six and seven, and is known as the most mature pencil grasp. As the fingers begin to move independently, the ring and little fingers curl into the palm, the web space opens and becomes more circular, the writing tool is held closer to the nib, and movement of the writing tool comes from the fingertips while the hand, wrist, elbow, and shoulder are stabilized. Children

consistently use only three fingers to hold the writing tool (Schneck, 2010). This is the ideal grip for moving the pencil efficiently, accurately, and at a good speed. While it is important to encourage the correct pencil grip at a young age, it is even more important to be aware that the correct, age-appropriate grip is being taught to the child. If not, incorrect habits can form which will be difficult to correct in the future.

Methodology

Basically, this research provided an information session on handwriting. See the following sections for details about the participants, the informational session and the outcomes.

Participants

All the participants were recruited through the Children's Playroom. The presentation was delivered to twelve moms who were part of the same group of Wednesday morning parents that initially completed the needs assessment. There was only one mom present who was new to the group.

Materials

The parents completed feedback questionnaires (see Appendix C). This 3 question survey was open-ended and asked parents post-presentation if their child has handwriting difficulties that they foresee as causing problems in the future, if they found the presentation helpful and how so, and if there is any new, helpful information that they learned from the presentation.

Procedure

The intervention or 'procedure' for this research was the information presentation. The presentation was given during the time of the program when parents leave their children and enter a separate room for their daily parent discussion meeting. Each of the moms was given a take home brochure (See Appendix B.) with activities addressing hand control and isolated

finger movement, basic graphic skills, improving orientation to printed language, and right and left discrimination. The stages of handwriting development and pencil grip progression were also included. The moms were also given a fine motor toolkit with everyday household items that correlated with the activities in the brochure. Items in the toolkits included pencils, crayons, dot to dots, play dough, mini tongs, pom-poms, raisins, and Cheerios in a Ziploc bag. The educational session included a thirty-five-minute power point presentation with interactive discussion, followed by a ten-minute question and answer session. To make the presentation parent friendly, the authors of this study refrained from using occupational therapy jargon and replaced it with layman's terms.

Results

One surprise we found throughout this study was that thirteen out of the fourteen parents surveyed indicated that they did not foresee their child as having handwriting difficulties, yet handwriting was still ranked as the primary area of interest. In addition, although these parents indicated no identifiable problems in their child's handwriting, they specified on the feedback questionnaires that they no longer were concerned about their child's handwriting development once informed of the typical progression of handwriting readiness.

Parent responses that were collected from the feedback questionnaires indicated that parents gained new knowledge and understanding of typical handwriting development.

A direct quote from a parent regarding the effectiveness of the presentation was that the, "Pencil grip progression was fantastic- I was always correcting two-year-old not knowing it was developmental." Again in regards to the effectiveness of the program, another mom stated, "Most definitely. It made me feel comfortable with where my child is. I also really liked the exercises we were given to practice." Many parents indicated verbally that they often corrected

their two- and three-year-olds' pencil grasp so that it would resemble their own mature grasp. This presentation was effective in educating parents on how they should not impose a mature pencil grasp on a child before the age of six, because they are not developmentally ready. By gaining new insights such as this, and developing realistic expectations for their children, parents can explore new activities that will help build the child's underlying hand skills, which are crucial for proper handwriting. It is the authors' expectation that by providing take home brochures and fine motor toolkits with common household items to the parents, it will help to facilitate opportunities to practice and develop these necessary skills. We also hope that building a strong rapport with Children's Playroom will provide greater networking opportunities for Elizabethtown College Occupational Therapy students to collaborate with this program in the future.

Discussion

Understanding realistic expectations for the performance of a child's handwriting and developmental rate is critical for parents and teachers to know in order to eliminate stress or panic over whether their child is developing at a typical speed. It is also essential not only for building a child's self esteem, but for ensuring academic success in school (Feder & Majnemer, 2007). Many students struggle as they enter into kindergarten with handwriting tasks because they cannot meet the demands that the state is requiring them to achieve. While further action can be taken at the school district and state level, the most immediate focus is directed towards educating parents on realistic expectations of their children and on providing them with activities that will help facilitate proper handwriting mechanics (Exner, 2010). This will help elicit improved handwriting performance so that children can better meet the state standards placed upon them once they reach kindergarten.

The American Occupational Therapy Association is in accordance with the idea that parents can encourage activities at home to support good handwriting skills that address the underlying components of muscle strength, endurance, coordination, and motor control. They also support the fact that, “The development of a child's handwriting can provide clues to developmental problems that could hinder a child's learning because teachers depend on written work to measure how well a child is learning” (AOTA). For this reason, it is again critical that parents are educated on the realistic demands of their child in regards to handwriting so that they can decipher the difference between an actual developmental problem or the inability to meet unrealistic state standards that the teachers are relying on to grade each child's performance.

Through the literature review, the investigators were able to gather information that exemplified the discrepancy between what the state expects children to accomplish in school, in regards to handwriting tasks, versus what the child can realistically and developmentally accomplish. By using this information as a background, both a presentation and formal educational material was delivered to the parents at Children's Playroom to better educate them on typical handwriting development in young children.

A limitation of this study is that there were pre-determined developmental categories to rank on the survey distributed to the parents. This forced-choice survey may have prevented parents from expressing other areas of child development they would have liked to learn more about. A second limitation may have been that the investigators did not observe any kindergarten classrooms to see how the Common Core program was being implemented. Although all school districts are required to meet the Common Core standards, that does not necessarily mean that schools implement it properly. Therefore, the three school districts kindergarten readiness checklists may not be an appropriate representation of the tasks those schools actually require

children to do in the classroom. Another limitation of this study is that only three different school district's kindergarten readiness checklists were investigated, so it can only relate how those three school districts implement Common Core. Due to the fact that the authors only examined Pennsylvania's Common Core standards, the state expectations cannot be generalizable to other school districts outside of this state.

Conclusion

Before this project began, Children's Playroom was seeking how occupational therapy services could be implemented into their Morning Parents program. By educating parents and staff on prewriting and handwriting skills and providing the developmentally appropriate activities, the researchers were able to provide this program with a small insight into one aspect of child development that occupational therapists can address in young children. With such a large discrepancy between Common Core standards and realistic expectations for handwriting development, it is important to consider that educating parents is only one small step towards addressing this disconnect, but it is a start to better understanding how parents can help their child succeed in school despite the barriers placed upon them. The parents who were participants in this research gained both factual and informative information that can easily be implemented into their child's everyday routines to help work on the handwriting readiness skills. The staff recommended that the researchers continue this presentation next fall with a new group of parents so that they too can be educated on the disconnect between state expectations and realistic expectations, in regards to handwriting, before their children reach school age. In the future, through the already established friendly partnership between Children's Playroom and Elizabethtown College, students can continue to collaborate with this program and educate both

parents and staff on additional areas of child development that occupational therapists can help to address.

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Appendix A
Needs Assessment Survey

Elizabethtown College Occupational Therapy Student Honors Project

Needs Assessment

Background Information:

Occupational therapy practitioners are highly qualified, licensed professionals who have expertise in promoting function and engagement of infants and toddlers and their families in everyday routines by addressing activities of daily living, rest and sleep, play, education, and social development. (OTA Practice Advisory on Occupational Therapy in Early Intervention. (2010, July 1). Retrieved October 21, 2015.)

Instructions:

Please complete the twelve-question survey listed below which applies to your child enrolled in the Children's Playroom program. If you have more than one child enrolled, then please list information for each child. If the question does not pertain to your child and the developmental stage they are currently at, then you may skip the question.

1. What is the age of your child?
2. What is the gender of your child?
3. Have you heard of sensory processing disorder?
4. Do you have any concerns about your child's overall health and development? If so, please list problems or behaviors you feel your child may be exhibiting.

5. When out in public, do you have any concerns about your child's behavior? List any problematic behaviors you feel your child displays.

6. Do you have any concerns with your child's feeding and eating habits? If so, please list your concerns.

7. Given children tend to be picky eaters, does your child seem pickier than usual to a point where it may interfere with your family meal time?

8. Do you foresee handwriting skills and development to be a challenge/is it already a challenge for your child? If so, what do you see as challenging for your child? (Ex: poor/weak pencil grasp, unable to hold bottle, technique of letter formation, etc....)

9. What about potty training, if anything, is difficult for your child?

10. Does your child have difficulty with bedtime routines and/or sleeping through the night?
If yes, please list your concerns.

11. Please list the following topics in rank order from 1-7 based on which topics you know the most and least about (1 = what you know least about, and 7 = what you know most about).

_____ Sensory Processing

_____ Feeding

_____ Development of hand skills and pre-handwriting

_____ Transitions and separation anxiety

_____ Potty training

_____ Sleeping patterns and bedtime routines

_____ Eating patterns

12. Out of the seven topics listed below, choose two topics you wish to know more about and please write them on the lines provided.

- Sensory processing
- Feeding
- Development of hand skills and pre- handwriting
- Transitions and separation anxiety
- Potty training
- Sleeping patterns and bedtime routines
- Eating patterns

1. _____

2. _____

Appendix B
Parent Brochure

Handwriting Development



Handwriting Development

Vertical line (2 years)

Horizontal line (2 years 6 months)

Circles (3 years)

Imitation and copying of a cross (4 years)

Squares (5 years)

Triangle (5 years 6 months)

Pencil Grip Progression

1-2 years: Fisted grip

2-3 years: Digital pronate grip

3-4 years: Four-finger grip

4-6 years: Static tripod

6-7 years: Dynamic tripod








By: Jaime Deisher and
Jacalyn Hikes

Elizabethtown College Occupational
Therapy Students

Prewriting and
Handwriting
Activities for at
Home





Parent Support and Education Program

Children's
Playroom

Hand Control and Isolated Finger Movement

- ✂ Roll a small ball of clay or silly putty between the tips of the thumb and index or middle finger
- ✂ Pick up small objects (ex: cheerios, raisins) with tweezers
- ✂ Pinch and seal a Ziploc bag using the thumb opposing each finger
- ✂ Twist open a small tube of toothpaste with the thumb and index and middle fingers
- ✂ Play dough exercises (squeezing, kneading, poking, pinching etc.)
- ✂ Squirting water bottles
- ✂ Gardening outdoors by pouring, scooping, and shoveling
- ✂ Completing jigsaw puzzles
- ✂ Cooking activities such as slicing, stirring, whisking, peaking etc.
- ✂ Building with blocks and Lego's

Basic Graphic Skills

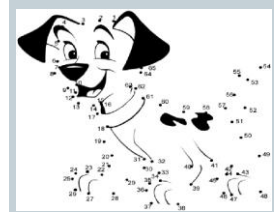
- ✂ Draw lines/ copy shapes using shaving cream, sand trays, finger paints
- ✂ Draw lines/ shapes to complete a picture story
- ✂ Form and color pictures of people, houses, trees, cars, or animals
- ✂ Complete simple dot to dot pictures and mazes

Improving Orientation to Printed Language

- ✂ Label children's drawings based on the child's descriptions
- ✂ Encourage book-making with the child's favorite topics
- ✂ Label common objects in the classroom

Right and Left Discrimination

- ✂ Hokey pokey dance
- ✂ Maneuver through obstacles by turning right and left
- ✂ Connect the dots
- ✂ Twister



Appendix C
Feedback Questionnaire

Elizabethtown College Occupational Therapy Student Honors Project

Feedback Questionnaire

1. Do you think your child has handwriting difficulties that you foresee as causing problems in the future? If so, please explain.

2. Did you find this presentation helpful? Please explain in one or two sentences.

3. Is there anything new that you learned from this presentation? Please explain in one or two sentences.