



6840 Seaview Road, Sechelt, BC V0N 3A4

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PRINTING

If we're doing it, we'd better be teaching it!

As a Pediatric Occupational Therapist, I'm frequently asked if we still need to teach children to print. Recent advances in technology have parents and teachers thinking that computers will solve all children's problems, taking the place of printing, math and even basic learning skills. This type of thinking is resulting in a generation of illiterate children, with developmental delays and subsequent learning difficulties. Technology such as computers, TV and videogames have invaded North American culture to the extent that recent studies now show technology is actually impeding children's ability to learn. North American children now use TV, videogames and computers 6.5 hours per day on average, resulting in physical and emotional development delays, attention difficulties and poor school performance. It is time now for parents, teachers and children to come together and redefine the basic learning objectives that are integral to every child, so that all children can attain basic literacy in reading, printing and math skills.

Many teachers and parents have stated that while they all agree that reading is still an essential skill, printing is not. Many elementary teachers actually believe that computers will replace children learning to print, and subsequently teachers don't put a lot of emphasis or spend a lot of time teaching this essential skill. What these well meaning teachers don't understand is that learning to print is both a visual and a motor skill, as well as a precursor for reading, spelling and sentence formation; therefore if a child cannot print, that child is illiterate. Children have expressed tears, frustration, and embarrassment as they describe their difficulties in learning how to print. Dr. Marvin Simner, Professor with the University of Alberta reports that printing has a "personal tone" for all children, and if a child's printing is low quality, it has a direct effect on that child's self esteem. Dr. Simner goes on to say in his book *Promoting Skilled Handwriting* that letter recognition, an important component in reading skill acquisition, is formed primarily through a child's observations of their own attempts at letter formation, achieved primarily through repetitive practice and observation of the teacher or parent. Printing is therefore a *visual* and a *motor* task, and requires practice of both components for skill achievement. A good example would be a child who visually watches a soccer game on TV, but is not able to go out and replicate the motor aspects of the skill component necessary to have good soccer performance. This child needs to practice the motor components over and over again before a "motor plan" is formed. Once a child achieves a motor plan for a specific task, the task becomes subconscious, requiring very little cognitive attention for completion.

As printing is a motor task, the motor plan for each letter and number needs to be firmly established for that child to then be able to free up conscious thought for tasks such as reading, spelling, and sentence production. Children who are slow in establishing a motor plan for letter and number production, or have *inconsistent* motor plans e.g. make their letters different ways, spend an inordinate amount of conscious mental energy in letter formation, leaving very little mental energy left for creative thought required for reading, spelling and sentence production. When a child watches their hand and pencil making a letter or a number, this image is embedded in the child's visual memory, similar to photograph taken with a camera. For proficiency in letter and number production, many visual images of the correct motor plan need to be firmly embedded in the child's visual memory in order for reading, spelling and sentence production to proceed smoothly. This

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email: info@zonein.ca • Toll free tel: 1.888.8zonein (1.888.896.6346) • Toll free fax: 1.877.8zonein (1.877.896.6346) • tel: 604.885.2666 • fax: 604.885.2668

process requires extensive time devoted by both parents and teachers in showing children a consistent method for letter and number production, with ample opportunity for practice. Failure to do so results in childhood illiteracy.

Often teachers and parents mistakenly think that printing and reading skills can be achieved through printing workbooks, computer programs, or even TV programs such as Sesame Street or Baby Einstein. Regarding workbooks; although they do provide a visual image and opportunity for the child to practice letter and number production, workbooks do not “show” the child the proper place to start, which way to turn, and when to stop during letter formation, an integral piece in helping the child to form a subconscious motor plan, and is the area of greatest skill deficit with children who have printing and reading difficulties. As children’s physical development starts with their trunk and moves outward, stroke and shape production needs to start with big movements using the whole body, teaching directionality and laterality and spatial skill components, prior to attempting letter and number production. Due to the sedentary nature of “today’s child” caused by excessive TV, videogame and computer use, many children have not established the necessary trunk and shoulder muscle control to be able to print. Only when a child’s trunk is strong, and shoulder mobile and stable, can a child position his wrist and hand to hold a pencil for printing.

Just as we have large muscles to control our trunk, arms and legs, we also have small muscles that control our eyes called “ocular” muscles. To develop properly, the ocular muscles require stimulation to the brain’s vestibular system, which is the foundation for a child’s ability to coordinate both sides of their body, their eyes, maintain erect posture, and optimize arousal states necessary for learning. Because TV, videogames and computers have small screens and are 2-dimensional, children are not receiving adequate ocular muscle movement necessary for printing and reading. Playing outside and viewing 3-dimensional nature is very different to viewing a nature program on TV! Developmental Optometrists have reported a dramatic rise over the last 20 years in children with learning difficulties who have poor ocular motor coordination. As the foundation for coordinated ocular motor control is found in a child’s vestibular system, parents and teachers need to realize the importance in reduction of TV, videogames and computer use, in addition to increasing a child’s activities involving moving their body, in order for printing and reading skills to develop properly.

As a Pediatric Occupational Therapist, I frequently see children with printing and reading difficulties who do not know where to start and when to turn in letter production. In my workshops, I ask parent and teacher participants to quickly print their name, and then follow by printing their name backward. Resulting comments center around the adults not knowing where to start, which way to go, when to stop, with noted frustration and anxiety. I ask that all adults who work with children who have difficulty printing and reading please consider the amount of effort and mental energy required for these skills, and realize that when a child has difficulty, it’s not only frustrating for that child, but also can be extremely exhausting. By the time children who have printing and reading difficulties reach grade 3 or 4, they have often “given up” on continuing to try something that they find so difficult, resulting in statements such as “Printing is boring” and “Reading is stupid”.

In summary, if we want our children to achieve literacy in reading, printing and math, we need to be teaching the basic skill sets, as well as providing ample opportunity for children to practice these skills, in order to optimize academic performance. Look around to see who is using a laptop to take notes at workshops or seminars. If we’re doing it, we’d better be teaching it.

Cris Rowan has been an Occupational Therapist for 20 years, working in schools for the past ten years. Cris has recently developed two new educational programs, Zone’in and Move’in, for use in schools and at home. Zone’in is derived from Sensory Integration theory, and helps children get their energy “Zone’in to Learn.” Move’in is based on Fine Motor Development theory and is designed to help children print and read by taking them on a “Printing Adventure”. For more information please see www.zonein.ca.