

Unintentional Therapy, Unexpected Results: My artistic life to this point

Sandra Hewitt-Parsons

Artist, volunteer and director, Canada

sandra.parsons@underoneroof.ca

Abstract

This autobiographical paper explores the varied and intricate relationships between the creation of visual art (through painting, drawing and sculpting) and the improvement of cognitive functions. It expresses the point of view of the “patient” as this author shares her own personal experience with using art elements (colour, line and shape) as a neurological stimulus. These creative and expressive therapies (though unintentional, in this case) were instrumental in restoring her cognitive abilities after surviving a massive childhood stroke. She goes on to relate how she applies this learning to working with children, adults and others with varying degrees of cognitive/neurological dysfunction today.

Keywords: sensory perception, neural pathways, visual stimuli, motor co-ordination, foundational elements

1. Introduction

This author may be an unlikely candidate for writing this type of paper on this particular topic for an international audience. I am a self-taught artist without any official credentials (although it is my wish to someday earn my Masters in Art Therapy). But years of independent study and my personal experiences with brain trauma and recovery have combined to give me insights into this field. Unlike an academic who may only be able to claim knowledge of this subject from relevant writings, my views are largely supplemented by a unique experiential knowledge.

2. Background

I grew up on the rugged west coast of the island of Newfoundland (off Canada’s eastern coast). My family lived in a very small community, with few amenities that a larger city would have (i.e. – public transportation, paved roads, etc.) I now realize that I had a distinct advantage with growing up in this environment – my father was a graphic artist, so I can’t remember a time when paint, pencils, clay and other assorted art materials were not in abundance around our home. My brother and I were always drawing, painting, sculpting or otherwise creating something. This creative background would help spark ideas on which I was to base my life’s work.

I suffered a massive ischemic¹ stroke when I was eight years old. At the time, doctors were not quite sure what caused it – over 25 years ago in rural Newfoundland, they did not have access to the technology that hospitals take for granted today. We had never heard of magnetic resonance imaging, and there was no CT scanner on the island. A cerebral angiogram was performed a week after suffering the stroke, and this ruled out possible causes (for example, cerebral tumor). Doctors theorized that the cause was probably an accident that I suffered the day before at a grade three “Education Week” winter party, at which we were sliding down hills of snow as part of the celebration. I was struck in the head by a tobaggan, and I possibly suffered a concussion. Because of lack of technology and delays in diagnostic treatment (the only treatment facility for stroke patients was in our capital city of St. John’s on the other side of the island - about 8 hours away by car), they could not pinpoint a definitive cause.

The stroke damaged my brain’s left hemisphere. This resulted in right-sided hemiplegia², anomic aphasia³, problem solving, mathematical and memory difficulties. Not much was known about pediatric strokes at the time, and the presiding doctors warned my parents not to be too optimistic about my recovery. Due to its severity, they were not sure how much I would recover of my cognitive and physical abilities. I would need to learn how to walk, talk (overcoming facial paralysis as well as using nouns, verbs and other grammatical rules correctly) and overcome more basic difficulties associated with the stroke (dressing, feeding myself . . .) Doctors were also concerned with behavioural and learning difficulties that I might possibly exhibit as a result of the damage to my brain.

The residing neurologist gave us one glimmer of hope – he said that, like many stroke patients, the information that was already stored in my brain as well as my capacity to learn were not gone. Rather, the

“bridges” were “burned”, or the neural pathways were disconnected. (For example, if shown a picture of an object, I could not tell what it was unless given a choice. The object’s name was still in my vocabulary, but I could not retrieve it unless assisted.) If I were to resume anything approaching a “normal” life, I would have to “rebuild” those “bridges” from scratch. The neurologist stated that this would be a long, arduous process – there would be no guarantee as to how much I would recover of my abilities.

Despite this somewhat bleak outlook, my family encouraged me to continue creating art. They thought it would help me with my motor co-ordination and my left-handed writing skills, since I was right-handed before the accident. I began by simply making marks on paper with a pencil. Over time, I added colour to my art by colouring simple, pre-drawn images. At the time, I was most strongly attracted to bright and neon colours (I would only make a connection between my first colour choices and neurological “healing” years later). I experimented with clay and began to complete unfinished drawings and, later, to draw simple objects and face shapes of my own. (Figure 1)

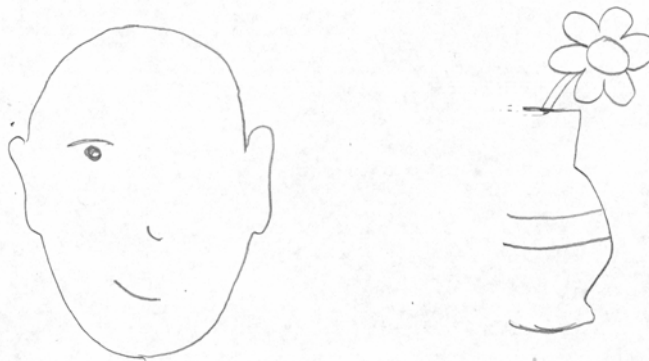


Figure 1 Samples of unfinished drawings that I was to complete

Figures 2 and 3 show my artwork as I was progressing through school. Figure 2 is a pen and ink work that I completed in grade 7 (12 years old). Figure 3 is a figure drawing (two knights) that was completed in grade 11 (16 years old).

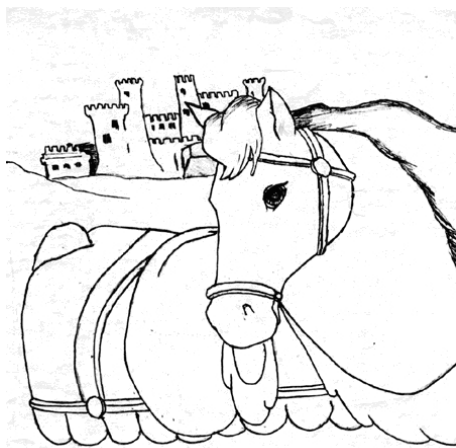


Figure 2 Pen and ink on bristol, 1983



Figure 3 graphite on cartridge paper, 1988

In the years that followed, I surpassed the expectations of the resident neurologists and stroke specialists. I did not experience many of the cognitive or behavioural problems that they had predicted. Contrary to their opinions, I also did very well (with the exception of mathematics) academically – although I struggled through elementary school, I graduated high school with honours. During this time, I continued with my creation of art works, and I was noted among my peers as an “amazing artist”. I was also becoming more aware of other stories of neurological improvements in survivors of brain trauma when using visual art as

therapy. From that point, I began to suspect that creating art had played a bigger role in my recovery than previously realized.

From authors like Betty Edwards and Shirley Riley, I learned that our brains are most active in the first three years of life. The right hemisphere plays a dominant role in these formative “non-verbal” beginnings. At that time, we have not yet achieved a mature concept of words, symbols or linear constructions. We try and make sense of our environment by studying the colours, lines and shapes that it contains. This is why many of us were so prolific at creating art in our early years. When drawing, colouring and sculpting, we were making our first attempts at processing visual information. These sensory perceptions fuel our higher thought functions, and stimulate dendrite growth in the brain. As we grow older and become more proficient at symbolic and language oriented tasks (or left hemisphere specialities), many of us rely less and less on shape, line and colour for stimulating our mental processing. With few exceptions, the left hemisphere becomes the dominant side of the brain. As the brain becomes more efficient (as suggested in the University of California’s study of the inverse relationship between glucose metabolic rates and intelligence in *Intelligence and changes in regional cerebral glucose metabolic rate* – see full reference in the ‘References’ section.), areas in the right hemisphere that were once used for such tasks as shape formation and visual-spatial orientation are ignored in favour of the faster symbolic mechanisms of the left hemisphere.

At eight years, I was possibly at an ideal age (if there is ever an “ideal” age to suffer a massive stroke!) to undergo a cerebral vascular accident. My brain was at peak performance in both the left and right hemispheres. Although a left hemisphere (or the dominant brain half) stroke is still widely regarded as more damaging in terms of day-to-day living, my right hemisphere was still sufficiently active to eventually compensate for most of my damaged cerebral areas. I cannot help but think that this was supplemented by manipulating art elements (for example – line, colour and shape) through the years.

When I first began to draw and paint after the stroke, I reverted back to my “non-verbal” beginnings to try and make sense of environmental sensory stimuli. As in my formative years, this manipulation stimulated dendrite growth, strengthened and possibly even rerouted neural connections between the right and left hemispheres. An increased number of dendrites and strengthened pathways led to improved mental processing speed and thought function. Tactile media (for example, clay, and finger paint) improved my fine motor control and the connections between my pre-frontal motor cortex as well as my muscles in my left arm and hand. My creation of artwork also strengthened blood vessels leading to the brain, thus leading to re-development in a more oxygen and nutrient-rich environment than otherwise would have been possible. This must have been what the neurologist was referring to when he stated that I was going to have to “build my bridges” all over again. However, I sincerely doubt that, at the time, he knew about the neurological benefits of creating art.

Presently, I have an art studio - I sell art supplies, original paintings and teach private art classes. I initially became an art instructor to supplement my income. I did not make a connection between my recovery through art and the needs of my students until a few years after I started teaching.

At one of my drawing classes, a student was highly frustrated with her sketch. She reported that she was having no problem “seeing” the object in her mind, and she could understand my instructions, but she was unable to translate that image to the paper. I suddenly realized that my students had a left / right hemisphere problem of their own with which to contend.

Because most of us rely more heavily on the left hemisphere as we become older, areas in the right hemisphere are dismissed as being irrelevant for efficient performance. Over time, unused dendrites seem to atrophy and finally, the neural pathways leading to these right hemisphere areas begin to close down. Therefore, these students (who had no prior brain trauma) were just as “cerebrally disabled” as I once was – though possibly through disuse and not damage. Presented with an object, they had no problem seeing the object, visualizing the object in their mind’s eye and understanding the object, (as I had no difficulty understanding these things after the damage to my brain).

They had no problems with verbally describing the object (as I could not at the time of my accident, caused by damage to my left hemisphere). However, their brains lacked the capacity to retrieve stored information and make sense of it in terms of line, orientation, shape, etc. In order to teach them to draw, paint and become spatially aware, I was going to have to help them rebuild their own neural “bridges” from scratch.

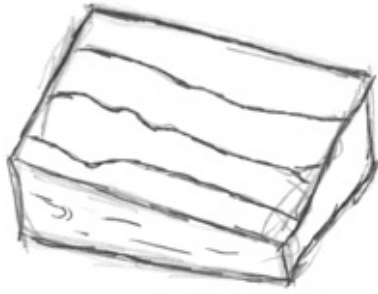


Figure 4

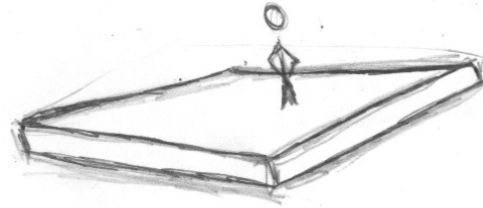


Figure 5

Figures 4 and 5 are examples of wharf sketches. In this particular class, I made the mistake of telling my students to think of the wharf as “diamond-shaped”. Many beginners used their logical left hemisphere to draw a diamond symbol (as in Figure 4), instead of actually drawing the shapes presented (as in Figure 5).

At the next few classes, I introduced exercises involving only line, abstract shape and colour – exercises not entirely unlike those I completed after suffering the stroke (Figure 6). After independently studying relevant material by such authors as Dr. Vernon Mark and Rudolph Arnheim, I knew that this would be an excellent way to “wake up” the right hemisphere. Over time, these exercises had the desired effect in that the students now could understand basic art elements more completely. They seemed to be making connections between visual stimuli, image recalling, shape formation and motor function. Several students remarked upon other unexpected benefits as well. Some older students claimed a diminished ability to perceive colours of similar hues when they first began to attend my classes. After a couple of months, however, they could differentiate between hues that are close to each other on the colour wheel (i.e. red and orange). Some claimed to “think” better after attending my classes. Many commented on the increase in energy they experienced, as well as their improved ability to cope with stress. In my humble opinion, these improvements seem consistent with neurological improvements that I experienced after suffering my brain trauma ordeal. Increased dendrite formation and stronger neural pathways would explain improved colour recognition, visual-spatial orientation and thought function, as well as improved coping ability. An increase in blood supply to the brain (therefore, an increase in oxygen and nutrients as well) would explain the energy increase.

I find it fascinating that, in all my reading on the subject on art as a therapy, most material will overlook persons with no experience of brain trauma – it is assumed that these people are at their peak in terms of neurological performance. But, in my own experience, that is not the case. Perhaps what is needed is a person whose personal expertise in brain dysfunction gives her the authority to point this out! I first volunteered my time and ability at the Bay St. George Long Term Care Centre in June 2004. This facility is the only government-funded geriatric care institution in the Bay St. George region. I contacted Lisa Henley, the resident recreation specialist, and told her about my ideas for an art program there. With her help and using my knowledge, I tailored these classes to meet the residents’ needs and abilities. Since the art program was launched, I have had experience with teaching people having such impairments as arthritis, motor skills limitations, mobility problems, Alzheimer’s disease, stroke, other neurological impairments and types of brain trauma.

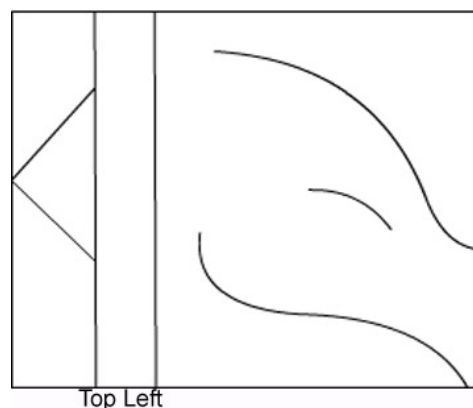


Figure 6

Figure 6 shows an example of a drawing exercise. In this particular exercise, I instruct students to divide their drawing paper into 4 squares. Then students are to draw exactly what they see in the prescribed square.

Between June of 2004 and December of 2005, I spent a few hours a week with these residents as we created with paint, oil pastel and clay. I choose colours for our paint and oil pastel projects very carefully. In my research, I discovered that bright colours stimulate the brain, and dark colours relax the brain. I did not want to over-stimulate the neurological processes of the residents, so I choose pictures that would not tax them psychologically. These pictures were mostly of Newfoundland landscapes and scenes that they would remember from their lives in the community (with neutral colours and very few bright colours). This would encourage them to talk about their youth and their memories, which, according to Dr. Vija Lusenbrink in his 2004 paper *Art therapy and the brain: An attempt to understand the underlying processes of art expression in therapy* stimulated the formation of new sensory pathways by itself. When the residents started to paint, I could direct them to paint a particular shape, rather than referring to the picture as a whole, in order to activate parts of the right hemisphere.

Over time, Lisa and I began to notice several things. The use of tactile media (such as clay and drawing materials) aided in maintaining and strengthening motor skills as well as eye / hand co-ordination. Clay was especially important for stimulating the sensory system. Its three dimensional nature also improved their visual-spatial awareness. Over time, residents who came to these sessions on a regular basis finished their projects much more quickly than they did at their first few sessions. Their stamina within the program seemed to be improving as well (that is to say that they did not seem as tired when completing a project). This indicated improved (or more efficient) brain functioning and faster mental processing speed. At this point, I was expecting these results because of past experience. However, I was surprised to see improvements in other aspects of their lives, which may be unique to the geriatric age group. Many residents experienced heightened self-esteem when completing an art project. Unlike programs that focused on something that they may have once been good at (for example – knitting, woodworking), every improvement was one that they could be proud of. Residents who had never participated in other programs offered by the facility took part in the art program, thus diminishing their isolation from their social group. A resident art show was put off in September 2004, with great success and accolades from the community and our local Artists' Association. (Figures 7 and 8). Overall, the program was a huge success.



Figure 7



Figure 8

It was with great sadness that, in January of 2006, I moved from the Bay St. George region to the neighbouring city of Corner Brook. However, it seems that my reputation preceded me because I am currently in charge of another volunteer geriatric art program here. I have also set up another art studio, where I am teaching people using the same curriculum as in my Stephenville classes. I am seeing improvements in my students here that are consistent with improvements witnessed in my Stephenville students. This cannot be dismissed as coincidence. Rather, I feel confident in saying that the creation of art is a powerful tool when used to improve brain connectivity. Art components such as line, colour and shape can be seen as foundational elements in our structure of mental processing. If recognition and manipulation of these elements weaken, it seems to handicap our higher thought functions over time. This can prove to be a serious stumbling block as we grow older, especially if we suffer some sort of brain trauma and we do not have the luxury of right hemisphere function to fall back on. The above evidence suggests that, to keep the brain at peak performance, we need to incorporate activities that strengthen the right hemisphere, as well as the left.

The geriatric art program has been attracting a lot of attention from people and organizations in the area including the Honourable Minister of Health of our provincial government. As this paper is being written, the research board at Western Health (our local health care organization) is considering this program as a possible pilot research project. With my experience and an abundance of articles, books and other relevant writings by such authors as Rick Garner (among the first to suggest a possible model for neuropsychological art therapy) and Dr. Maureen Del Giacco (American Creative Art Therapy Institute) as support, I feel validated in stating that such a program is needed.

Explanatory notes

¹ischemic – stroke caused by the interruption of blood flow to the brain, most commonly due to a clot

²hemiplegia – paralysis

³anomic aphasia – speech disorder in which I found it very hard to express myself verbally, using nouns, verbs or other grammatical rules

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