“How scribbling can change your brain”

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13/03/26

The music is on - something emotive, often very well known “Mr Blue Sky”, “Nessun Dorma” or some classic Dire Straits. The people in front of me start to move. They can’t really help themselves. They have a pen, or paintbrush or crayon in their hands. I hold my paper up so they can see it and start making random, scribbling marks in time to the music. Soon they start too. What happens next is pure joy. A room full of ‘I’m not really an artist’ ‘I haven’t drawn since I was a child’ and ‘I’m not creative’ types are suddenly in the zone, and my work is done.

The first time I discovered this activity was in 1989. I had a class of seven-year-olds some coloured chalks, large paper and a CD of Vivaldi’s Four Seasons. I put the music on and as I remember, a raucous class calmed and quietened down. The children moved easily with the sounds of the first movement of “Spring”. They were completely and entirely entranced. Was it the music? Was it the mark-making or was it both? At this stage as an early career primary teacher, with no experience (not even a secondary education) in Visual Arts, I had no knowledge of abstract expressionism. Years later I discovered Kandinsky and his practice of using music to inspire his abstract works. But I knew something for sure… this had been a good lesson! What a moment of serendipity and joy and how nice to have an activity in my back pocket that worked so well.

Fast forward a few decades and the mark-making to music activity is the way I begin almost every lesson with teenagers. It calms down the most reluctant of participants. It has a high level of engagement with adult groups both social (paint and sip type workshops) and structured art lessons. Would it appeal to academics? Is it just a fun activity or does it actually help? As I started to research in the new area of neuroscience - neuro-aesthetics it became obvious that inadvertently I had been changing brains.

Even before the invention and of the MRI (Magnetic Resonance Imaging) researchers had started to realise that the brain produced the art and that art had a positive effect on the brain. The idea that the brain was composed of regions which undertook specific functions was understood in 1909. Korbinian Brodmann published “*Vergleichende Lokalisationslehre der Großhirnrinde* “Comparative Localization Theory of the Cerebral

Cortex, Presented in Its Principles on the Basis of Cellular Structure." He posed the idea of the brain as a territory which should be mapped. The EEG (electroencephalogram) was invented in 1924. So, for over a hundred years we have known that our brains run on electricity and that electrical signals are the communication pathways throughout the body. The first MEG (Magnetoencephalography) report was published in 1968. We were alerted to the presence of magnetic fields in the brain. Over the next few decades knowledge of what was happening in the brain filtered through from the scientific community to the general population.

In 1970 Albert Eistein realised that thinking worked independently from words and symbols. (CitationEinstein, 1970, p. 12) Others started writing about visualization. (CitationCooper, 1975; CitationShepard, 1971) Terms such as mental imagery and visual processing were discussed. By the late 1980s experiments had shown, that the neural processes responsible for mental imagery took place in the same regions of the brain that process visual images (CitationFarah, 1989). The term neuroscience was in use by the early 1990s and by 1995 the *International Society for the History of the Neurosciences* (ISHN) was founded in Montreal in Canada.

At a professional development workshop for teachers in 2007, I was introduced to the idea that thinking is a biological process and that teachers can work to create situations whereby learning occurs more efficiently and naturally, than in traditional classrooms. If I remember correctly the dendrites (neurons' linking branches) grow when their humans are in sunlight, when walking and when they are happy. The dendrites, however, shrivel and die if unhappy. This simple piece of information was mind-blowing and professionally life changing. Not only was it morally wrong for a classroom to be sad and stressful, but it was counterproductive for learning at a neurological level. The best thing I could do for young brains was to create a happy space. To take students outside to learn. To encourage them to move. This is not always easy or even possible in a classroom of up to 30. However, I had a strategy that incorporated this research.

Happy brains are therefore productive brains. This is surely true for adults as well as children. Much work is being done – and rightly so, to prove that aesthetic practices improve our mental health. My interest is how aesthetic practices – particularly those in the Visual Arts, even scribbling, may help the world's cleverest brains become even more productive.

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