Living Better with Dementia
ART, MUSIC AND CREATIVITY FOR LIVING BETTER WITH DEMENTIA

‘You can’t use up creativity. The more you use, the more you have.’

Maya Angelou (1928–2014)

Introduction

Highly creative individuals weave together drive, skill and imagination to generate new ideas and actions. It is said that artists further employ the ability to link related sensory, conceptual and emotional images through a chosen medium (Seeley et al., 2008). Sharing interests in art, music and creativity can break down perceived barriers in the community. But I couldn’t agree more with the sentiment expressed in Killick and Craig (2012, p.17): ‘[C]reativity involves bringing something of the inside out, a letting go.’ There are certain observations that are particularly noteworthy. The human species is the only animal that can draw a picture (Matsuzawa, 1991). Also, a topic that has long fascinated neuroscientists is whether the animal kingdom can ‘enjoy’ music (e.g. Fitch, 2013). It is also fast becoming clear that some people living with dementia can have quite staggering artistic talents unleashed.

Other jurisdictions will be able to share their own experiences of ‘social prescribing’. In November 2007, the Scottish Development Centre for Mental
Health/Scottish Government published their well-received *Developing Social Prescribing and Community Referrals for Mental Health in Scotland*. It states:

Social prescribing is a valuable complement to other recent and ongoing developments within the NHS to promote access to psychological treatments and interventions. It is now widely understood that social, economic and environmental factors have a significant influence on the mental health and wellbeing of people in Scotland. (Scottish Development Centre for Mental Health/Scottish Government, 2007, p.5)

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**What is creativity?**

There has been much discussion about what ‘creativity’ is. Many consider, for example, that the celebration of art and music is ultimately a triumph of individuality (e.g. Ramachandran and Hirstein, 1999). It is argued that the origins of creativity are, in fact, ancient and lie in Africa, suggesting that human anatomy and cognition might have been well developed by then (Morriss-Kay, 2010). Morriss-Kay (2010) argues, completely reasonably, that 3D art ‘may have begun with human likeness recognition’ (p.158), and emphasises the sophistication of the neural substrates of perception. However, she also refers to the creation of images from imagination or ‘the mind’s eye’; and the evolution of ‘the mind’s eye’ is currently a fertile area of exploration (Caldwell, 2014).

There is some sense in the literature of creativity being a ‘unique achievement’ judged by the quality of the ‘finished products’, such as Shakespeare’s *The Tempest* or Charles Dickens’ *Hard Times*, for example (Amabile, 1993). This is related, perhaps, to the property of ‘novelty’; novelty has traditionally been closely linked to standard definitions of creativity (Kaufman, 2013). It has been argued further that ‘originality is a required but insufficient condition; the work must also be of value’ (El-Murad and West, 2004, p.189).

There has been some general discussion of the factors that are thought to promote creativity, as well as the factors that inhibit creativity. The notion of working in teams to promote creativity is also well known; benefits are thought to be mutual stimulation and the positive effect of feedback (e.g. King and Anderson, 1990). Fear might possibly be an inhibitor of creativity (e.g. Nickerson, 1999). These ideas are helpful for the general interpretation of the emergence of artistic talent which can happen in people living better with dementia.
Art and living better with dementia

Artistic talent and dementia

There are many aspects of the essence of art, and the perceptual qualia that underlie them, that are way beyond the scope of this chapter. For an excellent review of some of these phenomena – for example, ‘a perceptual group’, ‘binding and reinforcing effects’, ‘contrast extraction’ and ‘symmetry’ – the reader is encouraged to refer to the excellent article ‘The science of art’ by V.S. Ramachandran and William Hirstein (1999). This comprehensive review looks at the evidence behind various perceptual phenomena, even if we are far from understanding their neural substrates.

What happens to artistic ability for someone living with dementia?

The first thing to say is that each person living with dementia is an individual. But some interesting observations have been made.

Behaviourally, painting depends on various cognitive processes such as object recognition, visual representation, constructive ability, working memory and motor skills (Takahata et al., 2014). Gordon (2005) opines that the development of exceptional and unexpected artistic skills at any age must be a matter of curiosity. This can occur among young children with severe learning difficulties, especially if they have autism. Some examples have previously been given in the literature, with descriptions of the way in which these children’s brains may function (Snyder et al., 2003). Kirk and Kertesz (1991) found that the ‘drawings of patients with Alzheimer’s disease displayed fewer angles, impaired perspective and spatial relations, simplification, and overall impairment compared with those of the control subjects’ (p.73). These deficits appeared to be independent of memory and language and continued to deteriorate over the course of three years. Neglect was relatively uncommon. It has been shown that damage in this region can cause a symptom known as constructional apraxia (Piercy, Hecaen and de Ajuriaguerra, 1960), which refers to the inability to draw or copy figures despite spared motor ability.

One prominent example of a drastic change in artistic style following brain damage is the serial artworks created by the famous professional artist Willem de Kooning, who had continued to draw after progression of dementia of the Alzheimer type (Crutch and Rossor, 2006). Crutch, Isaacs and Rossor (2001) reported the case of a man with probable dementia of the Alzheimer type fulfilling the criteria of the DSM-IV (American Psychiatric Association, 2000). W.U. was
a 66-year-old artist, born in south Philadelphia, who came to England in 1957. The authors felt that the rapidity and extent of change in artistic ability was indicative of a process above and beyond normal ageing, particularly given his relatively young age at onset. Over an interval of five years, there was an objective deterioration in the quality of artwork produced.

Studies of spontaneous drawing in people living well with dementia of the Alzheimer type have highlighted the presence of perceptual and executive visuospatial deficits. Neuropsychological measures of visuo perceptual and visuospatial function tend to show significant decline, as a component of the global cognitive impairment. Change in artistic styles as a consequence of focal brain damage has also been reported in patients with a cerebral stroke. The most cited region in relation to visual constructive ability is the right hemisphere (Magnus and Laeng, 2006). Cummings and Zarit (1987) also report the course of an artist with dementia of the Alzheimer type over a 30-month period. The patient’s work became more simplified and primitive. His colour palette became increasingly restricted, and advanced techniques such as shading and perspective were lost.

The phenomenon of ‘visual realism’ is characterised by accurate and detailed representation of the scenes and objects in visual space. In primates, visual representation is constructed through hierarchical processing of lower-level perceptual information and higher-level visual representation (Marr, 1982). For realistic drawing, extraction of lower-level perceptual information – such as edge, contour, shape, colour, contrast, light and shadow – is necessary. This lower-level perceptual information corresponds to the so-called ‘physical level’ in Marr’s classical computational model of visual representation (Marr, 1982). Magnus and Laeng (2006) included this perceptual information as the necessary components for expert drawing. Takahata and colleagues (2014) recently reported a case of left prefrontal stroke, where the patient showed enhancement of artistic skills of realistic painting after the onset of brain damage.

Rankin and colleagues (2007) did a ‘head-to-head comparison’ of artistic styles in dementia of the Alzheimer type and frontotemporal dementia (FTD). Despite equal performance on standard visuospatial tests, these groups of people living with dementia produced distinct patterns of artistic features. The visual art created by the semantic dementia (SD) group was characterised by significant facial distortion and overall bizarreness, compared with normal control drawings, regardless of whether they depicted people or objects. However, it is noteworthy that patients in this group did show trends towards more disorganised composition, which it is suggested may be due to frontal-executive dysfunction in the areas of visuospatial planning and organisation. Indeed, on neuropsychological testing, persons living with frontotemporal dementia performed the worst of all groups.
in almost all cognitive domains. Their drawings also demonstrated distortion of facial features, which may be due to damage to the fusiform face area, the posterior structure in the inferior temporal gyrus that is currently known to be implicated in the differentiation and characterisation of facial detail.

Ebersbach (2003) described an artist who depicted her visual hallucinations associated with Parkinson’s disease. In this case, the artist was able to translate her symptoms into a beautiful artistic product. In another remarkable report, Sahlas described the accomplished artist, poet, novelist, illustrator and playwright Mervyn Peake (Sahlas, 2003). Diagnosed with dementia with Lewy bodies (DLB), in his fifth decade Peaks began to describe his visual hallucinations and paranoid delusions in sketches and poetry composed during his illness. Miller and colleagues (2000) reported on 12 patients with FTD who acquired, or sustained, new musical or visual abilities despite progression of their dementia. Intriguingly, they reported that artistic output shared many features. Talents were musical or visual, but never in the verbal sphere. Work lacked a symbolic or abstract component, and painters copied or remembered realistic landscapes and animals. Miller and colleagues (1998) also described, two years earlier, five persons with early FTD who became artists; their history, artistic process, neuropsychology and anatomy are described.

Chakravarty (2011) later described the case of an 82-year-old female with probable dementia of the Alzheimer type, who developed unusual artistic creativity after development of her disease. The person showed no inclination towards visual arts during her premorbid years. She had presented with progressive memory loss for mostly recent events, which was soon followed by getting lost inside her house and on the road, disorientation in time and place, and difficulty in naming and recognising her relatives. Her paintings were mostly of human figures, vibrant and rich in colour, and with attention to detail. There were many images of Hindu gods and goddesses (images and idols which she must have seen several times in the past). To explain behavioural improvement following brain injury, Kapur (1996) coined the term ‘paradoxical functional facilitation’, thought to be a compensatory augmentation occurring as a specific manifestation of central nervous system plasticity. This hypothesis has been verified to some extent through converging evidence elsewhere. For example, simulating such brain impairment in healthy people by directing low-frequency magnetic pulses into the left frontotemporal lobe has produced significant stylistic changes in drawing (Snyder et al., 2003). (An alternative view has been proposed by Ambar Chakravarty (2010) called ‘reverse diaschisis’, the opposite of the situation in which reduced function of one brain area leads to reduced function of a remote brain area to which it is anatomically connected.)
Dementia does not always facilitate artistic creativity, however.

Budrys and colleagues (2007) reported the case of V.V., a professional artist from an artist family. After graduating from the Lithuanian Art Academy in 1988, she had produced paintings, engravings, poetry and performances. She was later found to have been living with neuronal intermediate filament inclusion disease (NIFID), a recently described new variant of early-onset frontotemporal dementia.

**Arts and creativity in practice**

Renée Beard (2012) completed a critique of the evidence base for arts therapies, including music, visual arts, drama and dance/movement therapies, between the years 1990 and 2010. Beard found that this evidence base is divided between studies focusing on the ‘product’ and those focusing on the ‘process’ of art.

A remarkable project on arts and creativity in Yorkshire has produced a photobook, “We’re not finished” – South Yorkshire Dementia Creative Arts Exhibitions 2009–2014, which celebrated the first six years of the South Yorkshire Dementia Creative Arts Exhibition, coordinated by the School of Nursing and Midwifery, University of Sheffield (University of Sheffield, 2014). The exhibition was successful in showcasing the talents of people living well with dementia, including families and care practitioners.

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**Music and living better with dementia**

**Why is music so important?**

The ubiquity of music in human culture is indicative of its ability to produce pleasure and reward value. Music is a cultural universal of human societies, and the ability to appreciate music is widely prized. Many people experience a particularly intense, euphoric response to music which, because of its frequent accompaniment by an autonomic or psychophysiological component, is sometimes described as ‘shivers-down-the-spine’ or ‘chills’ (e.g. Panksepp, 1995). Chills comprise clear, discrete events.

Patients have few autobiographical memories (Rubin and Kozin, 1984), which are formed earlier in life (especially between 10 and 30 years), when the context of acquisition is particularly charged emotionally, and few flashbulb memories, which concern a public event when the context of acquisition is particularly unexpected, dramatic and charged emotionally (Brown and Kulik, 1977). A component of Brown and Kulik’s argument about ‘flashbulb memories’ was that the emotional significance of the event – which they proposed included the arousal evoked by
the event as well as the consequentiality of the event – would be a key determinant of whether the details of the event were retained.

**Music and emotions**

Blood and Zatorre (2001) found that subjective reports of chills were accompanied by changes in heart rate, electromyogram and respiration. As intensity of these chills increased, cerebral blood flow increased, and decreases were observed in brain regions thought to be involved in reward motivation, emotion and arousal, including ventral striatum, midbrain, amygdala, orbitofrontal cortex and ventral medial prefrontal cortex. Brain structures correlating with intensely pleasant emotion in the 2001 study differed considerably from those observed during unpleasant or pleasant responses to musical dissonance or consonance in Blood and colleagues’ previous study (1999).

**Music and the brain**

Music–brain relationships can also be investigated by studying cases of musicians with cerebral lesions (Basso and Capitani, 1985; Signoret *et al.*, 1987). One of the most dramatic cases is that of the French composer of paternal Swiss and maternal Basque descent, Maurice Ravel (1875–1937), who is thought to have developed a progressive cerebral disease. Several historians and musicologists have reflected on Ravel’s life, but most of these biographies say little about Ravel’s last years (Amaducci, Grassi and Boller, 2002).

It is occasionally thought that language and music are two sides of the same intellectual coin, but research on brain-damaged patients has shown that the loss of verbal functions (aphasia) is not necessarily accompanied by a loss of musical abilities (amusia) (Basso, 1993). Amusia without aphasia has also been described. This double dissociation indicates functional autonomy in these mental processes (Amaducci *et al.*, 2002).

**Music and memory**

Music can affect and be affected by memory.

For example, participants who were induced into sad moods via music tended to recall negative (mood-congruent) autobiographical events first, followed by positive autobiographical events (Josephson, Singer and Salovey, 1996). However, while the perceptual and affective dimensions of music have received much attention, the cognitive organisation of music knowledge has been
researched less widely. Omar and colleagues (2010) investigated these aspects of music knowledge in relation to musical perceptual abilities and extra-musical neuropsychological functions, and their results are indeed fascinating. The findings here perhaps suggest that music knowledge is fractionated, and superordinate musical knowledge is relatively more robust than knowledge of particular music. Under this hypothesis, it is reasonable to suggest, as indeed the authors did, that music constitutes a distinct domain of non-verbal knowledge but shares certain cognitive organisational features with other brain knowledge systems. Within the domain of music knowledge, dissociable cognitive mechanisms process knowledge derived from physical sources and the knowledge of abstract musical entities. Absolute pitch may be preserved after extensive left anterior temporal lobe damage (Zatorre, 1989), and the literature suggests perhaps that musical pitch may constitute a privileged route to naming in semantic dementia. Voxel-based morphometry of magnetic resonance brain images have showed that the recognition of famous tunes correlated with the degree of right anterior temporal lobe atrophy, particularly in the temporal pole, and the research background of this is interesting (e.g. Hsieh et al., 2011).

Music may encourage not only autobiographical memory recall but also cognitive performance in category fluency (Thompson et al., 2005). This study suggests that music improves both memory access and speech content and fluency. Listening to music, in particular popular songs, can stimulate memory by evoking autobiographical events. Musical semantic knowledge of a popular song seems to be relatively well preserved in patients with dementia of the Alzheimer type in the mild or moderate stages, and seems to be associated with a relatively well-preserved capacity of access to autobiographical memories. Results from Basaglia-Pappas and colleagues (2013) now suggest that music can enhance cognitive performance and can be used for reminiscence therapy. Emotional events often attain a privileged status in memory (LaBar and Cabeza, 2006).

There are several reasons to suspect that the medial prefrontal cortex (MPFC) might support the integration of memories, emotions and music. Meta-analyses of autobiographical memory retrieval tasks indicate MPFC involvement (Svoboda, McKinnon and Levine, 2006), and, more generally, the MPFC is engaged by judgments regarding self-relevance and affect (Ochsner et al., 2004). The consistent finding is that musical memory is often surprisingly well-preserved in dementia of the Alzheimer type (Vanstone and Cuddy, 2010); this might be consistent with a crucial role for the caudal anterior cingulate and the ventral pre-supplementary motor area in the neural encoding of long-known as compared with recently known and unknown music (Jacobsen et al., 2015).
Holland and Kensinger (2010) have recently discussed how findings from the clinical literature (e.g. regarding depression) and the social psychology literature (e.g. on emotion regulation) might inform future investigations of the interplay between the emotions experienced at the time of retrieval and the memories recalled, and they present ideas for future research in this domain. As beautifully explained by Salimpoor and colleagues (2009), the conundrum lies in the fact that there are no direct functional similarities between music and other pleasure-producing stimuli: it has no clearly established biological value (cf. food, love and sex), no tangible basis (cf. pharmacological drugs and monetary rewards) and no known addictive properties (cf. gambling and nicotine). It is reported that Freud and Nabokov seemed incapable of receiving any pleasure at all from music (see, for example, the brilliant *Musicophilia* by Oliver Sacks, 2011). Music reliably evokes strong physiological as well as cognitive emotional responses (Balteş *et al.*, 2011; Khalfa *et al.*, 2002), and these responses have been linked to a distributed cortico-subcortical brain network that mediates biological drives and rewards and the evaluation of emotional and social signals more generally (Peretz and Zatorre, 2005). However, the neurobiological role of music and the reasons these organised abstract sounds should hold such appeal for our species remain elusive (Mithen, 2005; Warren, 2008). One prominent theory is that music asserts its effects through influencing emotions (Meyer, 1956). It follows from this that music may evoke or enhance emotions, and that emotion in itself could be rewarding. The connection between emotional arousal and sympathetic nervous system activity has been well established (Ekman, Levenson and Friesen, 1983).

**‘Musicophilia’**

As argued by Fletcher, Clark and Warren (2014), as an abstract stimulus, music is ideally suited to probe interactions between reward, affective and cortical information processing circuitry (Salimpoor *et al.*, 2013). Abnormally enhanced appreciation of music or ‘musicophilia’, reflected in increased listening to music, craving for music and/or willingness to listen to music even at the expense of other daily-life activities, may rarely signal brain disease: examples include neurodevelopmental disorders such as Williams syndrome (Martens, Reutens and Wilson, 2010), head trauma (Sacks, 2011), stroke (Jaome, 1984), temporal lobe epilepsy on anticonvulsant therapy (Rohrer, Smith and Warren, 2006) and focal degenerations, particularly involving the temporal lobes (Hailstone, Omar and Warren, 2009). Fletcher and colleagues (2013) found that musicophilia was more commonly associated with the syndrome of semantic dementia (SD; associated
with focal anteromedial temporal lobe and inferior frontal lobe atrophy) than behavioural variant frontotemporal dementia (bvFTD).

**Is there an evidence base for ‘music therapy’?**

Tanaka, Nogawa and Tanaka (2012) discussed the most effective music for Japanese persons living with dementia, using Japanese music. They proposed two hypotheses: (1) effective brain rehabilitation will be represented by increased activity throughout the prefrontal lobe after or during music therapy; and (2) music therapy with Japanese music will be more effective for Japanese patients than classical music. Recent clinical studies, namely in functional neuroimaging, have been able to evidence the favourable role of music therapy in the management of dementia of the Alzheimer type (Koger, Chapin and Brotons, 1999). Music-based therapy corresponds to two fundamental methods: a ‘receptive’ listening-based method and an ‘active’ method, based on playing musical instruments. Music therapy was defined by Munro and Mount (1978) as ‘the controlled use of music, its elements and their influences on the human being to aid in the physiologic, psychologic and emotional integration of the individual during the treatment of an illness or disability’ (p.1033).

Guétin and colleagues (2009) helpfully reported on a single-centre, comparative, controlled, randomised study, with blinded assessment of its results. The duration of follow-up was 24 weeks. Results from this study confirm the valuable effect of music therapy on anxiety and depression in patients with mild to moderate dementia of the Alzheimer type. One of the challenges in caring for people with dementia is organising stimulating activities. Zgola (1987) argues that the most successful programmes, both in adult day care and in residential care, have found that activities replacing skills that have been lost support positive roles and make success possible. A stimulating environment can help people with dementia by diverting attention from loss and illness. Over a decade ago Topo and colleagues (2004) found that multimedia products can be used in dementia care if support is available and the design of the product takes into account the user requirements of people with dementia.

In the ‘Music therapy and dementia’ workshop at the Alzheimer Europe conference in Malta (2013), Simone Willig presented ‘A lot of things work better with music’. Willig trained at the University of Applied Sciences and has musically accompanied people with dementia for 15 years. With her colleague Silke Kammer, she is the author of the influential book *Mit Musik geht vieles besser: Der Königsweg in der Pflege bei Menschen mit Demenz* (2012; translated as ‘A Lot of Things Work Better with Music: The Royal Road to People with Dementia’). The beginning of Willig’s poster reads as follows:
During recent years, music therapy has become an important part of the psycho-social services provided for people with dementia connecting to the encounters. Often serving as a different kind of language, music assists both in establishing contact with other people, and with one’s own emotions and body. Music has the ability to build a bridge to a person’s past and cultural origin and to promote a sense of belonging and a lasting feeling of security. (Willig, 2013, reproduced by kind permission)

Silke Kammer is a professional in music therapy from Bad Nauheim and Frankfurt am Main in Germany. She works with older people and people living well with dementia and other long-term neurological conditions. Kammer (2014) argues that in everyday life one can add quality to encounters with people with dementia by singing songs according to the situation. In her poster for the Alzheimer Europe conference held in Glasgow in 2014, Kammer argued that adding a ‘simple catchy melody through a little song’ can make events more meaningful. In terms of the bookcase analogy referred to in Chapter 15 on the reminiscence of sporting memories, it is as if Kammer is deliberating adding an emotional ‘tag’ to memories to give them more resilience in the memory databank of a person living well with dementia.

I previously introduced the concept of relationship-centred care in Chapter 7. Camic, Myferi Williams and Meeten (2011) conducted a useful study of ten people living with dementia and their family carers who participated in a Singing Together Group for ten weeks. It is argued by the authors that, in relation to Nolan’s Senses Framework (see Chapter 7), it is clear from the interview responses that many of the ‘senses’ were met with the community singing group. The atmosphere of the group and personal characteristics of the music facilitator made people feel safe (sense of security) and ‘valued’. Participants were immediately able to have a ‘sense of purpose’ and ‘belonging’, and the opportunity for new learning gave them a ‘sense of fulfilment’. By connecting to old familiar songs, people were able to reminisce about their past working.

--- Conclusion ---

It is beginning to become clear that art, music and creativity can be ‘unlocked’ in some people living with dementia. This is an exciting phenomenon, and one that many people will find inspiring, especially as it contradicts all the negativity about dementia portrayed in the media. We should not be afraid of things even though we do not understand the cognitive neuroscience or cognitive neurology behind them. As a further example of people living with dementia having emotions
unlocked, I now turn to sporting memories in Chapter 15. This award-winning initiative is fascinating.

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**References**


