

Wired to wander

*Twiddling our thumbs has always been dismissed as a luxurious waste of time. Not anymore. **Kristie Hayden** talks to cognitive expert, **Dr Muireann Irish**, about our wandering minds, dementia and encouraging our kids to daydream.*



My grandmother's final years of life were spent crouching in the shadow of dementia. As torrents of words and photos raged past her, too fast to grab, she became evermore silent. Eventually the torrents weakened and a mere trickle of memory remained. Our final get-together was spent loafing in the shade of a magnificent blue-gum after an unimpressive nursing-home roast.

Stomachs growling with the trauma of overcooked lamb, our eyes met and held while other family members chatted away. Through her curious stare, I envisaged her mind at work, flicking through albums of time, trying to find a picture of me. Snapshots that faded to black from a disease surfacing in 1,800 Australians every week. Eventually she caved; "Who are you again?"

Losing her rich network of memories was sadly ironic for a woman I remember as being the ultimate daydreamer. Most mornings she would sit as still as a post during breakfast, toast suspended mid-bite, staring into space. I was insatiably curious about her daydreams. As focused as ever, her brow furrowed, eyes glistened and head cocked periodically as a new thought popped in to entertain her. Was she remembering her beloved husband? His handsome face smiling under his slouch-hat? Or was she making future plans? Put lamingtons on the shopping list. Must vacuum the shag. Plans she would, before long, no longer comprehend.

Both remembering the past and imagining the future are lost to individuals living with dementia who are, in reality, stuck in the moment. Thanks to ground-breaking research by Dr Muireann Irish of Neuroscience Research Australia, we can begin to understand the brain's process of how, and why, imagination is affected in dementia. Neuroimaging shows the processes of remembering and imagining share similar underlying brain mechanisms.

"I have demonstrated that individuals with dementia show profound deficits in envisaging possible future events and that such difficulties relate to damage to discrete regions in the brain," Dr Irish says. "I have also revealed that individuals with dementia are unable to carry out simple actions at future time-points, which has obvious implications for their day-to-day functioning."

If this damage blocks the ability to daydream, is the result a bored indifference? Depression? No escape from present reality?

"I hope to shed light upon the mechanisms underlying the devastating symptoms that are characteristic of [dementia], and ultimately to improve the individuals' quality of life," Dr Irish says. With this understanding, carers can structure patients' environments so that being stuck in the moment is as enjoyable as possible."

The Forgotten Art Of Daydreaming

Daydreaming, or spontaneous cognition, is a uniquely human mind-wandering endeavor. "Daydreaming has been suggested to be one of the pinnacles of human evolution," Dr Irish reveals. "We have the luxury of removing ourselves from the current moment in time to mentally transport ourselves on a fanciful journey, discover creative solutions to problems, plan for the future, and take a trip down memory lane."

Our unlimited source of internal entertainment not only relieves boredom. Crucially, it helps us revise our lives, learn from mistakes, solve problems with internal dialogue and mentally role-play forthcoming conversations with others. It also consolidates our internal moral code; we imagine what others are thinking and feeling, we have

empathy. While other brain networks co-ordinate various activities such as hearing, movement and attention, the default network, or 'daydreaming network', activates when we turn off our focus.

"In essence, this is the mind-wandering network," Dr Irish explains. "It is estimated that we spend up to two-thirds of our waking lives letting our minds wander."

While neuroimaging shows the brain to be highly active during daydreaming it begs the question, do we daydream enough in our modern-day technology and attention-driven lives? Are we giving our brains enough 'daydreaming' exercise? Consider our younger generation, so computer-focused with little time spent simply twiddling their thumbs.

We cannot get those decisive 'light-bulb' moments in any state other than daydreaming. Such moments usually occur in the shower,

lying on the beach or staring at a wall - moments when our attention network is firmly switched off.

With research now suggesting 'downtime' essential in allowing our scattered minds to regroup and recharge, we all have good reason to daydream. The human propensity to daydream, to remember, to imagine, to show empathy, is natural. It is the lifeblood of human evolution.

"In fact," Dr Irish says, "These are the very acts that make us the individuals we are."

So I'll remember my grandmother for her daydreaming, her love of lamingtons and the photo of her handsome smiling soldier. While dementia went about stealing her memories and blocking her imagination, research into why brings us closer to a cure - and it may well be discovered by a "eureka" moment whilst daydreaming.