University of Melbourne

Lisa Smithies

How does a writer's brain *do* creative writing?

Abstract:

Inspired by Martin Edmond's keynote speech at last year's conference, this creative paper also examines one creative writer's experience, but from a cognitive science perspective. Taking the form of a meta-fictocritical personal essay, I utilise cognitive neuroscience, cognitive linguistic theories and theories of play, to explore how a writer's brain (in this case, my own) mines memory, imagination, and everything in between, to construct a creative text. In other words, how my world becomes fiction and vice versa.

Creative writing is the shaping of ideas into language; essentially, turning the neuro-electrical activity of the brain into words on a page. This paper is a deconstruction of the construction of a text, an attempt to unravel my creative practice, in situ, both subjectively and objectively. Therefore, it is a potential mind over matter train wreck; that includes a funny cat video.

Biographical note:

Lisa Smithies writes short fiction and screenplays. She teaches creative writing at the University of Melbourne, where she is completing a PhD that examines why the human brain loves short fiction. She runs the blog *Creative Writer PhD.*

Keywords:

Creative writing process – memory – cognitive linguistics – play

Getting started

The process starts, as it often does, with an observation, an image or, in this case, a memory:

> I am pushing a white wicker toy pram. Inside, dressed in a lace-edged bonnet and cardigan, is my cat, Smokey. She looks up at me lovingly as we head out, following our usual route – down the front steps, up the driveway, onto the rocky footpath, and off we go, down the street…

Knowing what I now know about cats, I find it hard to believe she willingly agreed to this game. But in my memory she does. She even purrs as I strap her paws down to stop her falling out when we go over the bumps.

My aim here is to use this memory to create a story or, more precisely, a piece of writing with story-like qualities. In other words, to arrange some words on a page in such a way that someone else can pick it up, read it, and it will create a meaningful experience in their own brain. This story will be fiction, so, in theory, I can do anything with this memory. But I am also writing a paper about writing a story, so I have already rejected many possible story ideas. I have probably rejected ideas I am unaware I even had. My chosen form is generally fairly traditional – attempting to create a seamless flow from beginning to end, so a reader can follow without being aware of the creative choices I have made in my writing.

Writer Kevin Brophy describes creative writing and imagination as 'raids on history and memory' (2003: 2). For the purposes of this paper, *memory* refers broadly to the complex cognitive processes that encode, store and retrieve information. There are multiple forms of memory and multiple ways that memories are processed in the brain, both consciously and unconsciously (Eichenbaum 2010). In terms of brain activity, memory, imagination and creativity are closely related. Memory experts Daniel Schacter and Donna Addis contend that when we access our memories we are accessing similar neurological pathways to the ones we access when we imagine (Schacter, Addis et al. 2012: 677). The close relationship between memory and imagination has given us an evolutionary edge. The flexibility to alter our memories of past events gives us the ability to imagine future ones, and to respond to new scenarios in inventive ways. But with flexibility comes fallibility.

Neuroscientist Gerald Edelman argues that remembering is itself a creative act (Stafford 2011: 11). Memories of events are not pulled from our brains intact. The process is malleable and individual. Our memories change because our biology (our synaptic circuitry, hormone levels, biochemistry, etc.) changes over time; making every act of remembering actually more a 'creative reimagining' of past events (11). Therefore, like creative writing, memory is essentially a constructive phenomenon (Schacter and Addis 2007). Furthermore, memory is associative; it leaps across time and space to form connections between disparate events and experiences.[1] Any writer (or reader) will recognise this form of cognitive association as something we do when we write creatively.

As this potential story will be fiction, in theory, I don't need to be overly concerned about the potential falsity of this memory. I can do whatever I want with this cat in the pram…

Building a story world

I do not yet know where young me, or her cat, are going, but I decide to follow her a while and see where she leads:

> I am sure it is sunny. It was always sunny when I was a child, that late afternoon golden sun, the perfect temperature. We live in a small white weatherboard house with the biggest backyard I have ever seen. Just behind the house a steep hill drops away, at the bottom is a flat grassy expanse with a rusting green swing set. I mentally wander through this world, past old paling fences and trees shrilling with cicadas, past the chk-chk-chk of sprinklers on freshly mown lawns. The gravel crunches under the red plastic pram wheels.
>
> But nothing happens.
>
> The streets are safe. There is no childhood angst. No strangers lurking. No snake in the grass. My idyllic childhood does not make for instantly interesting fiction. I like to write about the domestic, about small moments of everyday epiphany. I feel there must be something here, but what is the story? Why would a reader be interested? I feel like the cat could be significant, but what can I put with it to make it *mean* something?
>
> Smokey features in many of my childhood memories – we hide together in wardrobes, ride my skateboard, climb trees. When I think of *fur,* her soft grey is the fur in my mind. But these memories feel too cutesy, too unreal for fiction. What did Mark Twain say?[2] The difference between fact and fiction is that fiction must be believable. I suspect this cat is not as happy as I remember her. That could be interesting, and more believable. My memory could be perverting what is clearly animal cruelty into a picture of childhood bliss. That could be an interesting angle – how we take the cruelties of childhood and subvert them into happy memories. But then again, what's wrong with happy memories?
>
> I wish I had a photo of me with the cat in a pram. I feel I need some proof of Smokey's love for me. I do not remember a photo with her and the pram existing, but I remember another photo. I can see it exactly – mum and I sit hugging, with Smokey beside us in a red bucket. It was taken in the backyard, near the bottom of the steps. If Smokey is happy in this photo, it will prove that she enjoyed our playtimes, so I go looking for it. (I will address the importance of procrastination later).
>
> I find the photo, but it is not how I remember it. It is not my mum and I, but my sister and me.

> The cat looks fairly content in the bucket. So perhaps she is the ideal playmate I remember. However, it is odd that the photo isn't exactly how I recall. I know memory is fallible, but I can see the imaginary photo so clearly.
>
> I know the exact spot in the garden. I can see things out of the frame: the Hills Hoist with the blue tarpaulin, the tangle of banana plants hiding the back fence. Sure the bucket is blue, not red, and there's a wagon I don't remember owning – but these are minor details.
>
> It is the absence of my mother in this photo that surprises me most. I was sure she was there because I looked at these old photos only a few months ago, when putting together an album for her funeral.
>
> And there it is – a major plot point – my mother died. A reader is not going to overlook that.
>
> Now, every time I mention the little girl pushing the cat in the pram, you're going to remember her mother is dead. As a writer, I can't ignore the fact that you now know this either.
>
> It probably means the cat symbolises something too.

The child and I

I do not normally write openly about myself. I like hiding in fiction, but freely steal from my real world experiences whenever I write. Like Tess Brady's obsessive-compulsive bowerbird (2000), I store away colourful little titbits to feather my fictional nests. I steal characters from the tram, smells from the markets. I pilfer names, snippets of conversations, the personal habits of friends and family, pillage newspapers, ransack talkback radio and loot lifestyle TV, put them all together in a metaphorical cocktail shaker, and strain them through a thesaurus.

What my brain is doing here is taking data, random information, and grouping it into meaningful categories, chunking it together to form semantic units. So in a way, all of my stories, while fiction, are about (or around) me. Usually however, I hope no one notices I am turning my real world into a fictional world – a world of words.

Cognitive linguist Mark Turner contends that words and expressions 'do not mean', but are merely 'prompts for us to construct meaning by working with [cognitive] processes we already know' (1991: 206). When we read, and write, we tap into the vast array of information stored in our brains. In other words, 'when we understand an utterance, we in no sense understand 'just what the words say'; the words themselves say nothing independent of the richly detailed knowledge and powerful cognitive processes we bring to bear' (1991: 206). Cognitive linguistic theories maintain we should view words not as self contained units of meaning, but rather as points on a map that direct a reader towards finding their own meaningful cognitive connections (Lee 2001).

The words a writer chooses are selected through cognitive processes: imagining and generating ideas; accessing and retrieving information from memory; adapting

knowledge to fit the constraints of a story; translating ideas into words; evaluating what is written and revising it accordingly (Flower and Hayes 1981). Writers choose their words strategically, for more than their dictionary definitions. We choose them to develop narrative, tone, voice, point of view, rhythm and flow. In choosing to use words in this way, we are creating recognisable patterns. Every word and sentence is a particular pattern of information that triggers recognition – a connection with prior knowledge of that kind of pattern in the reader. This information can be intellectual, cultural, social or semantic (plus more). A writer can spend days, weeks, months, years moving words around on a page, until they find the pattern that best represents their own cognitive connections, and our common underlying biology means that another human, with an adequately compatible cognitive database, can take that text and create a semblance of the writer's intended meaning from it.

Where is the story?

We were looking at a photo… The cat seems happy, so it is plausible that child-me can push a perfectly contented cat in a fictional pram down a street. But finding this photo, and having it not match my memory, has altered how I feel about where this story should go. Now it feels like a story of absence, of loss.

I don't really want to write about my mother; to dip my elegiacal toe into waters already swimming with meditations like Barthes' *Mourning Diary* (2009), and Lydia Davis's *Grammar Questions* (2007). Dead parents have been done to death. What could I possibly add? But then again, how can I not? Isn't that why a writer writes? To try and figure out what we are thinking, and feeling? To make sense of our world.

So, for the purposes of this paper/story, I acknowledge that this child is me, or me-ish and I can feel a kind of narrator-author-adult-child point-of-view surfacing, that spans both the story and this paper about writing the story, slipping between past and present. I am a thread follower, so, generally, I do not plot out a story beforehand. I start with a sentence, an image or a premise, something that catches my attention and take a *let's see where this goes* approach.

Thinking about the cat, I remember a conversation in the front yard: I am crying because Smokey has gone missing. Mum says she heard someone is stealing cats, they may be skinning them to make fur coats. Mum rubs the skin around her neck, "Smokey would make a lovely stole." I am not sure if she was being insensitive, or if it's her warped sense of humour, but at this point a couple of story ideas occur to me.

I reject one about how we don't remember photos the way they actually are, and one that explores the malleability and individuality of memory. I reject an idea for a fantasy story about photos that physically change, in order to better represent our memories. And there were a few other forgettable ideas.

Like the MEXICA program[3] (Perez and Sharples 2001), an artificial intelligence program designed to model the cognition involved in writing a short story, my brain comes preprogramed with certain constraints—aesthetic and linguistic preferences, for example—that govern my creative choices. This is sometimes referred to as style, authorial voice, or point of view, but, as cognitive linguistics argues, it actually

exemplifies my personal cognitive relationship with words and ideas. These ideas are rejected because they do not fit with my current creative needs.

In creating these ideas, this melange of memory and imagination, I have a nagging worry… If every time we remember something we are altering that memory in some way (Stafford 2011), what am I doing to these memories by trying to write about them? What could writing this story/paper do to my memories of my mother?

But then again fear is part of the process, isn't it? Risk taking, exploration and discovery, the nervousness, that sense that you are on to something new, something that has not occurred to you before.

Ok. I have something…

> We have a kid. A girl. Pushing a pram down a street. She is playing. That is clear.
>
> Do I need to set a time and a place for this? No, it should be generic – any time, any place.
>
> The kid starts talking to the pram. A one-sided conversation that goes something along the lines of: "One day I will not be here…"
>
> What could that mean? Should I make it clear or leave it open? I'll leave it open. I am a *less is more* kind of writer. I could hint that the child is repeating something she has heard. It becomes a story about a child starting to comprehend that her parents will die someday. Maybe she plays it out but doesn't really understand. I like that. It feels like I am onto something. It is a small idea that refers to something bigger than itself.
>
> What exactly do I do with the cat here? Should we see inside the pram? Could it be about the fact that children often learn first about death through the death of a pet?
>
> That feels promising, enough to be getting on with. (Did I mention I write micro-fiction?) So, I go and get myself a snack.
>
> Then I decide to reward myself with a funny cat video.[4] After all, it fits with the cat motif. (As I said, I will discuss the importance of procrastination later.)

https://www.youtube.com/watch?v=Veg63B8ofnQ

Playing around

While it is purely coincidence that I chose a memory of myself playing with my cat as the catalyst (excuse the pun) for this paper/story, it is apt. Play is a phenomenon closely linked with creativity, imagination and memory. Humans are built for play. It is a primal activity, 'preconscious and preverbal – it arises out of ancient biological

structures that existed before our consciousness or our ability to speak' (Brown 2009: 15). Play behaviour is seen in mammals, many birds, some reptiles, and octopuses. Play can be simple or complex. It can be serious or frivolous, purposeful or aimless.

Play expert Stuart Brown argues that it is more than just an activity; play is a state of mind (60). It is the ideal headspace to use when we want to create novel connections, to innovate. We participate for the sake of pleasure. We lose our sense of time. We lose our sense of self. Brown describes play as a form of 'attunement' (81), an 'out-of-time, in-the-zone' sensation (59), like creativity expert Mihaly Csikszentmihalyi's notion of 'flow' (1996). Flow, Csikszentmihalyi maintains, is essential to innovation, discovery and invention – to human creativity in general.

Play is different things to different people. Brown describes eight types of play personalities, which, he says, inform our preferences for modes of play. Most people, he states, have a mixture of play personalities (2009: 65). He describes an accomplished dancer and choreographer who, as a child, had learning difficulties due to her inability to keep still and pay attention in the classroom. Luckily, her parents took her to a rather enlightened GP who suggested she try dancing lessons, and, suddenly, her kinetic energy made sense. She is what Brown describes as 'The Kinesthete' personality – a person who has to move to think (66). According to Brown, a writer would fit mainly into 'The Storyteller' personality, but I would say it is more specific than that. Like the dancer who moves to think, I write to think. I have heard other writers say this too. They write to discover what they are thinking, to make sense of the world.

Returning to the cat in the pram, and the girl with the dead mother. The part of the memory/story that keeps returning to my mind is tying Smokey's little paws down to the pram. I like the naïve animal cruelty of it. If I hide this side of myself in a fictional child, I can investigate the cruelty of children's play, in a playful way. I can play with light and shade.

> What if I make the pram empty?
>
> Or if she is pushing a dead cat?
>
> Is that too far?

These kinds of ideas illustrate the play of creative writing for me – the open exploration, the conversations with the self (or selves). It allows for missteps and detours. It is through this kind of play that I work out where a story is going.

Editing

When I use the term 'editing' here, I use it broadly to refer to a process that starts even before putting pen to paper, not simply revising and proofreading. Editing is selection; it is the shaping of ideas and words. While it comes back to my personal cognitive relationship with words and ideas, it also goes further to consider the reader more explicitly. With my brand of exploratory writing, it often does not become clear to me what I am actually writing about until I get to the end of a story, and the story shape becomes clear. Then I go back and edit a piece accordingly.

I am aware of the meta-implications of that statement as I go back over this story/paper to edit it, each time reshaping my recollections of the writing process, creating order from chaos. The randomness of our experienced everyday world is difficult for our brains to grasp without the organising semantic force of narrative. This story/paper, like my memories in general, is a construction. A story.

The human brain is a system designed by evolution to be *good enough* to allow us to process the information we *need* to process, but it is impossible for us to process everything around us, so we are selective. Cognitive literary theorist Ellen Spolsky (1993) argues that our everyday cognitive ability to creatively fill in 'gaps' is fundamental to literary interpretation. The brain makes stuff up. It fills in gaps in our perception and comprehension in order to create a sense of wholeness, a narrative, so we can happily move through our day with a sense of purpose. Furthermore, Spolsky contends that we are working with a 'system of perception and thought that both produces and at the same time works at compensating for instability' (1993: 192). This allows us to reconcile conflicting, contradictory and ambiguous information; a cognitive trait that, Spolsky maintains, is essential to the formation of complex literary meanings.

It is the writer's job, in my opinion, to provide just enough information on the page for a reader to make creative leaps of their own, and it is through the editing process, that this is honed. Which brings me back to the idea of writing as thinking…

I have a child, a pram, a line of dialogue, a little bit of cruelty, intended or not, and a future loss. At this point, I am not sure what I have on the page and what still exists only in my head, but I know from experience that as I write, the story will change. It has to. It is a necessary part of turning the neuro-electrical activity of my brain into words on a page. It is sometimes disappointing, but often surprising what this process creates.

Cognitive psychologists Keith Oatley and Maja Djikic contend that the act of writing enables a particular kind of thinking, one that extends the bounds of normally internal processes, by externalising our ideas. They argue that writers 'use paper to extend their thinking, and to create frameworks of cues that enable readers of a story to construct mental models that they may enter empathetically' (2008: 9). They note that during the process of drafting and redrafting 'paper can be like a conversation partner, but with the enhancement that the words do not dissolve into the air' (12). A reader enters the conversation and interprets what the writer has written, taking the work the writer has done, the lines they have drawn, and also bringing their own memories to their interpretation. It is a never-ending cycle based around subjective experience.

Conclusion

In true form, I have put off discussing procrastination for as long as possible, but I would be remiss not to mention it, as I now believe that procrastination plays a crucial part of my process. Luckily, positive beliefs about procrastination can make it a useful creative tool (Fernie & Spada 2008).

Despite years of writing, I still delay putting pen to paper for as long as possible. As Douglas Adams said, 'I love deadlines. I love the whooshing noise they make as they go by' (2002: prologue xxiii). My brain seems to be the type that needs a certain amount of stress to be creative – think of the old chestnut 'necessity is the mother of invention.'[5] As psychologist Dean Simonton argues, creative moments often happen when we are not expecting them, provided the necessary *foundations* for these creative leaps are in place (Simonton 1999). I am not going to solve any great mathematical problems because I have no foundational knowledge in that area, I do however spend a lot of time thinking about the world in terms of stories. So when a story comes along, my brain has the ability to recognise it. It is in these moments of procrastination and play that creative leaps are often made (Simonton 1999). Procrastination gives my brain offline processing time – time for my unconscious to be working away while I watch cat videos. The trick is to procrastinate for the right amount of time, and this is something I am still learning.

Like Kitty Corliss in the cat video, we take a leap when we write, multiples leaps actually, not always successfully. Some writers will see aspects of their own process in this paper, and there are those who have a process that is entirely different. Writing is a practice, but every story is a new challenge, a new problem to be solved.

So, where is this promised story? I thought long and hard about including a finished story in this paper, but I think writing it now would be an injustice to the ones you have formed in your own minds. Besides, this was an exercise, an exploration. And if you have a story in your mind already, my job here is done.

Endnotes

[1] For more detail on how and why the brain might do this see Steven Pinker's discussion on 'connectoplasm' in: Pinker, Steven 1997. How the Mind Works. New York, Norton.

[2] Mark Twain is attributed with authorship of the original version of this quote, thought to first appear in Twain, Mark 1897 *Following the Equator: A Journey Around the World*, Hartford, Connecticut: American Publishing Company, 156.

[3] MEXICA was a computer program designed on cognitive models of how humans write short stories, with the main objective of producing 'novel and interesting stories as a result of the interaction between engagement and reflection.' See: Perez, Rafael Perez Ý and Mike Sharples 2001. 'MEXICA: A Computer Model of a Cognitive Account of Creative Writing', *Journal of Experimental & Theoretical Artificial Intelligence* 13:2, 119-139.

[4] Don't worry, the internet assured me that the cat is fine. He lived to fly another day.

[5] Proverb dating back to 16th Century (in English). See: Simpson, John Andrew and Jennifer Speake 1998 *The Concise Oxford Dictionary of Proverbs,* USA: Oxford University Press.

List of works cited

Adams, Douglas 2002 *The Salmon of Doubt*, New York: Random House

Barthes, Roland 2009 *Mourning Diary*, Trans. Richard Howard, New York: Hill and Wang

Brady, Tess 2000 'A Question of Genre: De-Mystifying the Exegesis', *TEXT* 4:1, 1-10

Brophy, Kevin 2003 *Explorations in Creative Writing*, Melbourne: Melbourne University Press

Brown, Stuart 2009 *Play: How it Shapes the Brain, Opens the Imagination, and Invigorates the Soul*, UK: Penguin

Csikszentmihalyi, Mihaly 1996 *Creativity: The Psychology of Discovery and Invention*, New York: Harper Collins Publishers

Davis, Lydia 2007 *Grammar Questions. Varieties of Disturbance*, New York: Farrar, Straus and Giroux, 27-29

Eichenbaum, Howard 2010 'Memory Systems', *Wiley Interdisciplinary Reviews: Cognitive Science* 1:4, 478-490

Fernie, Bruce A and Marcantonio M Spada 2008 'Metacognitions about Procrastination: A Preliminary Investigation', *Behavioural and Cognitive Psychotherapy* 36: 03, 359-364

Flower, Linda and John R. Hayes 1981 'A Cognitive Process Theory of Writing', *College Composition and Communication* 32: 4, 365-387.

Lee, David Alan 2001, *Cognitive Linguistics: An Introduction*, Melbourne: Oxford University Press

Oatley, Keith & Maja Djikic 2008 'Writing as Thinking', *Review of General Psychology* 12:1, 9-27

Perez, Rafael Perez Ý & Mike Sharples 2001, 'MEXICA: A Computer Model of a Cognitive Account of Creative Writing', *Journal of Experimental & Theoretical Artificial Intelligence* 13: 2, 119-139

Pinker, Steven 1997 *How the Mind Works*, New York: Norton

Schacter, Daniel L & Donna Rose Addis 2007 'The Cognitive Neuroscience of Constructive Memory: Remembering the Past and Imagining the Future', *Philosophical Transactions of the Royal Society of London B: Biological Sciences* 362: 1481, 773-786

Schacter, Daniel L., Donna Rose Addis, Demis Hassabis, Victoria C. Martin, R. Nathan Spreng & Karl K. Szpunar 2012 'The Future of Memory: Remembering, Imagining, and the Brain', *Neuron* 76:4, 677-694

Simonton, Dean Keith 1999 *Origins of genius: Darwinian perspectives on creativity*, New York: Oxford University Press

Simpson, John Andrew & Jennifer Speake 1998 *The Concise Oxford Dictionary of Proverbs*, USA: Oxford University Press

Spolsky, Ellen 1993 *Gaps in Nature: Literary Interpretation and the Modular Mind* Albany: State University of New York Press

Stafford, Barbara Maria 2011 'Crystal and Smoke: Putting Image Back in Mind' in BM Stafford (ed.) *A Field Guide to a New Meta-Field: Bridging the Humanities-Neurosciences Divide*, Chicago: University of Chicago Press, 1-63

Turner, Mark 1991 *Reading Minds: The Study of English in the Age of Cognitive Science*, Princeton: Princeton University Press

Twain, Mark 1897 *Following the Equator: A Journey Around the World*, Hartford, Connecticut: American Publishing Company