Spontaneous thought and the mysteries of the wandering mind

March 28 2018, by Jennifer Windt

Credit: Monash University

It's happened to all of us. Someone is droning on about KPIs in a meeting, and your mind drifts off. *I should really buy a new suit in case I get that job interview. But I probably won't get it. But if I do get it, where*

will I park? Should I take the train?

Mind wandering, also known in neuroscientific circles as spontaneous thought, takes up a surprisingly huge chunk of our waking consciousness.

"The research says that we're engaged in mind wandering between 30 to 50 per cent of our waking hours," says Dr. Jennifer Windt, a lecturer in Monash's philosophy department. "We're doing this all the time."

Spontaneous thought is any thought, memory, feeling, daydream or fantasy disconnected from ongoing tasks or sensory experience. Often, people mind-wander when engaged in repetitive tasks that don't require all their attention. Sometimes your mind will drift off when you're doing something difficult, or even doing something you feel is too complicated. The classic example: driving home from work, your mind wanders off, and when you arrive, you think, 'How did I get here?'.

"Students apparently also do it a lot in lectures," says Dr. Windt.

Our knee-jerk reaction is to label mind wandering as bad. In terms of driving safety, reading comprehension and learning outcomes, it seems to be the opposite of focused attention.

"There's evidence that it's associated with decreased wellbeing," she says. "People initially had quite a negative view of it, labelling it as the opposite of mindfulness, the prized 'here and now' experience. That's still a popular way of thinking about it."

Not black and white

But it's not clear that spontaneous thought is simply attention's evil twin.

Take meditation, which everyone knows is good for you. Depending on the tradition, meditators aren't always encouraged to actively suppress spontaneous thoughts; they're supposed to just observe them.

"It's there, and I'm going to take note it's there, and then let it go," says Dr. Windt. "This is not the opposite of mind wandering. It's a way of letting thought unfold unhindered and becoming aware of its fluctuations."

Dr. Windt has studied and written extensively about dreaming, and she says that many types of spontaneous thought are similar to what happens in dreams.

She argues that 'awake' and 'asleep' are probably not the opposites we take them to be, nor should they necessarily align with our concepts of 'conscious' and 'unconscious'.

Not only does waking mind wandering look a lot like dreaming, but people also have conscious experiences right after they fall asleep, and even in deep, dreamless sleep.

"A lot of sleep seems to be much more active – not just in terms of conscious experience and spontaneous thought, but also in terms of physical behaviour – than we ever thought," she says.

What purpose do all these spontaneous thought processes serve?

"There's no consensus on whether dreaming or spontaneous thought in wakefulness have an adaptive function," Windt says. "Sleep clearly does – for instance, in thermoregulation, memory consolidation and so on – but how that matches up with dreaming and dream content is not clear."

Energy-wise, these mental states are costly; in many forms of mind wandering and REM sleep, certain brain areas are actually more active than when we're focused on a specific task. Surely we can't have evolved this ability just to tune out of boring meetings.

An important role

Research indicates that mind wandering plays an important role in planning, creativity and associative thought, Dr. Windt says.

It may be part of the reason why humans are so innovative, so good at coming up with novel solutions to problems. But then there are the downsides, such as rumination and distracted driving. Might it be possible to optimise our day- and/or night-dreaming? Could we maximise the good and minimise the bad?

To flesh this out, researchers need data. Unfortunately, however, you can't just dip into someone's brain and record their thoughts.

In typical well-controlled laboratory experiments, people are presented with tasks and put in scanners or asked to push buttons. These tasks, simple ones designed by a researcher, aren't likely to be anything personally meaningful or engaging—so it's not surprising that they easily lead to apparently unrelated thoughts and daydreams. Moreover, the occurrence and content of mind wandering itself can't be experimentally controlled—that's exactly what makes such thoughts spontaneous.

A lot of what really matters, says Dr. Windt, happens when we're not directly responding to something in the environment, but taking a step back from it and doing our own thing, detaching.

"Maybe we're thinking about things we could do, different possible outcomes, or maybe there's some boring task that we don't need to

concentrate on, so we're using mental resources to do something more novel or creative, which is also more entertaining."

How on earth do you capture that in a scanner or with a button?

"We have a similar problem with dreaming," she says. "There's no task that activates dreaming directly. So how do you measure it? How can you use psychology, which is mostly task-based, to get at these things? It's a methodological challenge."

Dr. Windt is teaming up with colleagues in the Institute of Cognitive and Clinical Neurosciences – Associate Professor Naotsugu Tsuchiya, Jeroen van Boxtel and Thomas Andrillon – to try to find a way to tackle the problem. Together they're designing novel techniques to capture people's subjective experiences and distinguish different subtypes of mind wandering and attentional lapses.

Lest your mind has wandered, let's not forget that Windt is a philosopher, and all this empirical work is designed to help her address the big questions: What does it mean to be a cognitive agent in control of our thoughts and attention? Is that something that we lose in sleep, or mind wandering? Or does mind wandering help us become cognitive agents in the first place?

Maybe these thoughts can keep you occupied in your next boring meeting.

Provided by Monash University

Citation: Spontaneous thought and the mysteries of the wandering mind (2018, March 28)