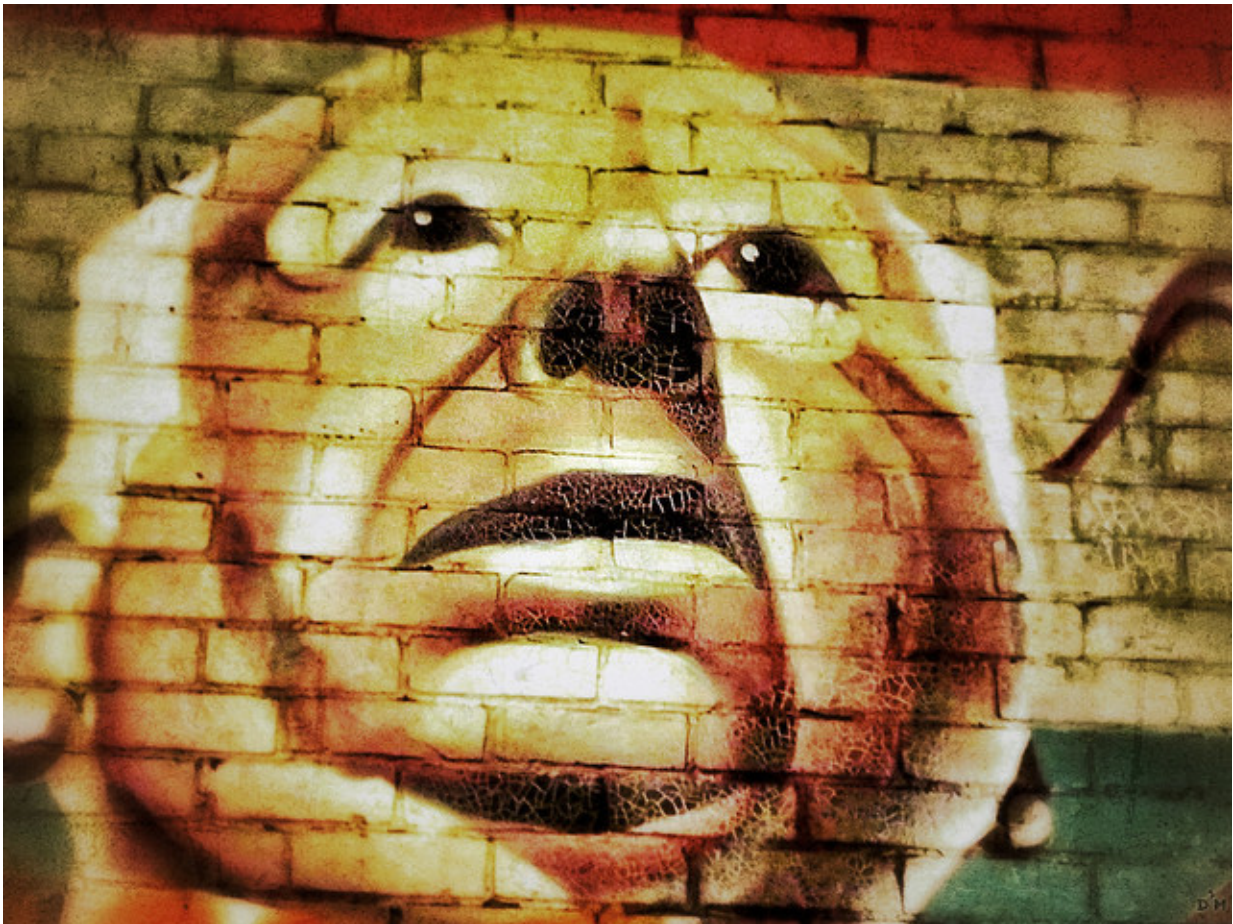


Young minds think alike – and older people are more distractible

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Hitchcock. Credit: photographymontreal

'Bang! You're Dead', a 1961 episode of Alfred Hitchcock Presents,

continues to surprise – but not just with the twist in its tale. Scientists at the University of Cambridge have used the programme to show that young people respond in a similar way to events, but as we age our thought patterns diverge.

The study, published today in the journal *Neurobiology of Aging*, also found that older people tended to be more easily distracted than younger adults.

Age is believed to change the way our brains respond and how its networks interact, but studies looking at these changes tend to use very artificial experiments, with basic stimuli. To try to understand how we respond to complex, life-like stimuli, researchers at the Cambridge Centre for Ageing and Neuroscience (Cam-CAN) showed 218 subjects aged 18-88 an edited version of an episode from the Hitchcock TV series while using functional magnetic resonance imaging (fMRI) to measure their brain activity.

The researchers found a surprising degree of similarity in the thought patterns amongst the younger subjects – their brains tended to 'light up' in similar ways and at similar points in the programme. However, in older subjects, this similarity tended to disappear and their thought processes became more idiosyncratic, suggesting that they were responding differently to what they were watching and were possibly more distracted.

The greatest differences were seen in the 'higher order' regions at the front of the brain, which are responsible for controlling [attention](#) (the superior frontal lobe and the intraparietal sulcus) and language processing (the bilateral middle temporal gyrus and left inferior frontal gyrus).

The findings suggest that our ability to respond to everyday events in the

environment differs with age, possibly due to altered patterns of attention.

Dr Karen Campbell from the Department of Psychology, first author on the study, says: "As we age, our ability to control the focus of attention tends to decline, and we end up attending to more 'distracting' information than [younger adults](#). As a result, older adults end up attending to a more diverse range of stimuli and so are more likely to understand and interpret everyday events in different ways than younger people."

In order to encourage audiences to respond to movies and TV programmes in the same way as everyone else, and hence have a 'shared experience', directors and cinematographers use a variety of techniques to draw attention to the focal item in each shot. When the stimulus is less engaging – for example, when one character is talking at length or the action is slow, people show less overlap in their neural patterns of activity, suggesting that a stimulus needs to be sufficiently captivating in order to drive attention. However, capturing attention is not sufficient when watching a film; the brain needs to maintain attention or at the very least, to limit attention to that information which is most relevant to the plot.

Dr Campbell and colleagues argue that the variety in brain patterns seen amongst older people reflects a difference in their ability to control their attention, as attentional capture by stimuli in the environment is known to be relatively preserved with age. This supports previous research which shows that [older adults](#) respond to and better remember materials with emotional content.

"We know that regions at the front of the brain are responsible for maintaining our attention, and these are the areas that see the greatest structural changes as we ages, and it is these changes that we believe are

being reflected in our study," she adds. "There may well be benefits to this distractibility. Attending to lots of different information could help with our creativity, for example."

More information: "Idiosyncratic responding during movie-watching predicted by age differences in attentional control." DOI: [dx.doi.org/10.1016/j.neurobiolaging.2015.07.028](https://doi.org/10.1016/j.neurobiolaging.2015.07.028)

Provided by University of Cambridge

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