CAN A SILENT MIND KNOW THYSELF?

Jaydan Pratts, Guyu Shen & Bo Yao

Lancaster University, United Kingdom

Grant 68/22

Background: Self-awareness encompasses our understanding and reflection on our mental states, emotions, and self-concept, evolving from basic bodily recognition in infants and animals to complex constructs like identity and values in humans (Duval & Wicklund, 1972; Charles et al., 2014; Amsterdam, 1972; Gallup, 1985). Inner speech, our silent internal dialogue, is believed to be pivotal for the latter, more advanced self-awareness, aiding in articulating and differentiating our mental states for deeper self-reflection (Morin, 2005, 2018; Bernstein et al., 2015; Fernyhough, 2008). Yet, the causal link between inner speech and self-awareness is not empirically tested, mainly inferred from associations between brain activity in speech production during self-referential tasks (Morin & Hamper, 2012). Aphantasia, characterised by an inability to create mental images and potentially impacting auditory imagery (Galton, 1880; Zeman et al., 2015, 2020), presents an opportunity to investigate this link, probing the implications of diminished auditory imagery and inner speech on self-awareness.

Aims: This project aims to explore (1) how inner speech experience differs between people with and without aphantasia; and (2) if inner speech is functionally and causally involved in self-processing.

Method: In Experiment 1, the study compares the inner speech abilities of aphantasics and non-aphantasics through questionnaires and behavioural tasks assessing the mental articulation of sounds, auditory imagery, and phonological processing, aiming to determine if aphantasics lack inner speech. Experiment 2 examines the role of inner speech in self-awareness by monitoring inner speech-related brain activity during self-referential tasks, such as evaluating personal traits and recalling autobiographical memories.

Preliminary results: We first conducted a meta-analysis and developed a theoretical framework linking inner speech subtypes to specific neural pathways of speech perception and production (Pratts et al., 2023, NeuroImage). Building on this framework, we evaluated inner speech and auditory imagery in individuals with and without Aphantasia. Our findings indicate Aphantasics struggled with aligning their inner speech with external speech but performed comparably to Non-Aphantasics in making phonological judgments. Aphantasics reported their inner speech as less vivid, particularly when imagining others' voices, corroborating with their significantly less vivid auditory imagery. However, both groups performed similarly in pitch imagery, and Aphantasics excelled in rhythm imagery. These observations highlight a multifaceted interaction between the generative and imaginative/perceptual aspects of inner speech in people with and without Aphantasia. They also draw our attention to the varied effectiveness of questionnaires and behavioural tasks in capture different aspects of inner speech. We are currently refining our tasks to enhance the precision and reliability of our assessments and then conduct an EEG study in spring to explore the role of inner speech in self-processing.

Keywords: Inner speech, Conscious thoughts, Neural oscillations

E-mail contact: b.yao1@lancaster.ac.uk