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Aphantasia, dysikonesia, anauralia: call for a single term for the lack of mental imagery – Commentary on Dance et al. (2021) and Hinwar and Lambert (2021). *Cortex*, (doi: 10.1016/j.cortex.2022.02.002) (In Press)

Abstract. Recently, the term ‘aphantasia’ has become current in scientific and public discourse to denote the absence of mental imagery. However, new terms for aphantasia or its subgroups have recently been proposed, e.g. ‘dysikonesia’ or ‘anauralia’, which complicates the literature, research communication and understanding for the general public. Before further terms emerge, we advocate the consistent use of the term ‘aphantasia’ as it can be used flexibly and precisely, and is already widely known in the scientific community and among the general public.

Traditionally, mental imagery refers to the quasi-perceptual conscious experiences of items in the absence of the corresponding external stimuli (Nanay, 2021).¹ Visual imagery is the visual variant of mental imagery, in the absence of corresponding visual stimuli. The possibility that some people might lack visual imagery entirely has been recognised since 1880, when the British psychologist and statistician Sir Francis Galton first quantified visual imagery vividness using his ‘breakfast table questionnaire’. Subsequent research was mainly limited to individual cases after head injuries (e.g. Brain, 1954). Many different terms were proposed for the lack of visual imagery, for example ‘visual irremembrance’ (Nielsen, 1946), ‘image generation process deficit’ (Farah, 1984), ‘defective revisualisation’ (Botez et al., 1985) and ‘blind imagination’ (Zeman et al., 2010), complicating communication between different research

¹ More recently, some people, particularly scientists, have used the term to refer to quasi-perceptual representations of items in the absence of the corresponding external stimuli, whether or not such representations are to be identified with, or accompanied by, conscious experiential states, thus, permitting the existence of a notion of unconscious imagery (Pearson, 2019).

groups and systematic research.

In 2010, Zeman et al. described the case of MX, a 65 year old man who lost his mental imagery after coronary angioplasty. Following a feature in the magazine *Discover* (Zimmer, 2010), the phenomenon gained public attention, leading to over twenty individuals contacting the researchers. In their description of these cases, Zeman et al. (2015) introduced the term 'aphantasia' to describe the absence of mental imagery. As a result of widespread press interest, via the BBC (Gallagher, 2015) and elsewhere, the term became known to a broad public (Zeman, 2016) and was eventually adopted in subsequent publications about this topic by research groups around the world (e.g. Jacobs et al., 2018; Keogh & Pearson, 2018; Macpherson, 2018; Milton et al., 2020; Monzel et al., 2021; Pearson, 2019; Pounder et al., 2021). The original article by Zeman et al. (2015) is now ranked within the top 1 % of research outputs from its time period, attesting to strong public interest in the topic (Altmetric, 2021). Initial estimates suggest a prevalence of 2–3 % of aphantasia among the general population (Faw, 2009; Zeman et al., 2020).

While initial aphantasia work relied on subjective metacognitive assessment, more recent work has utilized a range of objective methods to measure imagery or the lack of it (Kay et al., 2021; Keogh & Pearson, 2018; Pearson et al., 2008; Wicken et al., 2021). Those methods include the objective and sensory-based binocular rivalry technique (Keogh & Pearson, 2018; Pearson et al., 2008), skin-conductance response (or lack of it) to emotional imagery (Wicken et al., 2021) and the physiological pupil response (or lack of it) to imagined light or dark shapes (Kay et al., 2021). The triangulation of these objective methods adds good support to the notion of aphantasia as a biologically-based condition and not of a purely psychogenic or semantic basis.

The term 'aphantasia' was borrowed from the Greek term for imagination, *phantasia*

(φαντασία), defined by Aristotle (1968) as the ‘faculty/power by which a *phantasma* [image or mental representation] is presented to us’. The prefix ‘a-’ was added to indicate the absence of imagery, by analogy with *aphasia* or *arrhythmia*. The definition of *aphantasia* was of ‘a condition of reduced or absent voluntary imagery’ (p. 4).² Thus, while the focus of the original report was indeed on visual imagery, the term’s scope was not restricted to visual imagery. Indeed, Zeman et al. (2015) noted that ten out of 21 participants reported that imagery in all sensory modalities was affected. Subsequent work indicates that a majority of those lacking visual imagery also lack imagery in other sense modalities (Zeman 2020, Dawes 2020, Dance 2021).

We believe that given its wide scientific use and the public interest associated with the term, the relevant stakeholders, including those with *aphantasia*, already know the term well. Thus, it will be helpful if ‘*aphantasia*’ is used to refer to the absence of mental imagery generically, qualified appropriately to indicate the modality of imagery concerned (e.g. ‘visual *aphantasia*’, ‘auditory *aphantasia*’, or ‘multisensory *aphantasia*’). This approach would be analogous to the use of the term ‘hallucination’ which is qualified by sense modality (e.g. visual hallucination, auditory hallucination or multisensory hallucination; see ICD-10 R44, World Health Organization, 2019). It will provide the best ease of use for all involved, and obviate the need to create novel terms to refer to imagery in other modalities. However, in contrast to this suggestion, we note two recent alternative proposals.

The term ‘*anauralia*’, a hybrid coinage, part Greek and part Latin, has been proposed by Hinwar and Lambert (2021) to describe the lack of auditory imagery. Overall, reference to non-visual mental imagery seems to be extremely rare in ancient Greek authors, but among the rare indications, the verb *phantazō* (φαντάζω), which is etymologically linked to *phantasia*

² *Voluntary* imagery was specified in recognition of those who reported occasional involuntary flashes of imagery while awake and those who had visual dreams despite otherwise lacking imagery.

(φαντασία), is used to refer to aural hallucinations (Pantelia, 2011). Moreover, the Latin word 'auris' is translated as 'ear' or 'hearing' (Olivetti Media Communication, 2003), so that the connotation of the specifically mental is missing. We suggest that, for these reasons, in addition to those already mentioned above, 'auditory aphantasia' may be preferable.

Second, the term 'dysikonesia' (Dance et al., 2021) has been suggested for multisensory or global aphantasia, on the mistaken assumption that aphantasia refers only to the lack of specifically visual imagery. Dance et al. (2021) justify the assumed specificity of aphantasia for visual imagery by referring to the same Greek word *phantázō*. However, their translation, 'I make visible' (Online Etymology Dictionary, 2001), is not always appropriate, as the word's above-mentioned application to aural hallucinations shows. A more comprehensively adequate translation of *phantázō* is 'I make appear' (Pantelia, 2011) and imagery in all modalities can 'appear' in the mind. Moreover, the term 'dysikonesia' (Dance et al., 2021) has some specific weaknesses: First, the etymological root of dysikonesia, the Greek term *eikōn* (εἰκών), normally refers to physical objects, such as pictures or statues (Pantelia, 2011). A passage in Plato's *Philebus* (39c) does use *eikōn* as a term for mental images, but in a metaphorical way: the images are produced by 'a painter in the psyche', and Plato needs to add to *eikōn* the qualification 'in the psyche' in order to make his meaning clear. Therefore, the etymological root *phantasia* is more appropriate as it does not refer to physical objects, but is confined to the mental. Second, the term 'dysikonesia' is not well-formed: the correct composition of the prefix 'dys-', the main component 'eikon', and the typical ending '-sia', is 'dysikasia'. Third, it seems cumbersome to use different Greek roots for generic imagery loss (i.e. dysikonesia) and vision-specific imagery loss (i.e. aphantasia), when it is efficient to refer to 'aphantasia' in both cases by adding a prefix such as visual, auditory or gustatory.

In conclusion, we suggest that the research community and stakeholders will be best

served by adopting a single term for the lack of mental imagery to facilitate exchange between research groups. We propose the retention of 'aphantasia'. The term is already widespread in the research community (e.g. Jacobs et al., 2018; Keogh & Pearson, 2018; Macpherson, 2018; Milton et al., 2020; Monzel et al., 2021; Pearson, 2019; Pounder et al., 2021) and the public domain (Gallagher, 2015; Zeman, 2016; Zimmer, 2010). If we continue to use aphantasia learning new terminology will not be required, literature searches will be simplified, and gains in understanding will be disseminated more readily. Aphantasia is easily modified with appropriate modality-specific terms (e.g. 'visual aphantasia', 'auditory aphantasia', or 'multisensory aphantasia') when one wishes to refer to specific sub-types. Nevertheless, we acknowledge, of course, that, as is always the case with language use, the final outcome will evolve naturally and research and public interest will ultimately select the final terminology used.

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