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Reply

When a (precise) awareness measure became a (sketchy) introspective report [☆]

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Subjective measures of awareness, such as confidence ratings (CR), post-decision wagering (PDW) or the perceptual awareness scale (PAS) have recently been the object of an intense debate. Different such methods have now been systematically compared in several recent studies (see e.g. Dienes & Seth, 2010; Sandberg, Timmermans, Overgaard, & Cleeremans, 2010; Wierzchoń, Asanowicz, Paulewicz & Cleeremans, 2012). Each method has its pros and cons, but they all aim to offer reliable quantitative measures of awareness as reported subjectively by participants. Importantly, such methods contrast both with introspective reports, which have been criticized as insensitive and imprecise, and with objective measures, which fail to reflect subjective experience per se. Subjective methods usually quantify awareness reports with a pre-set taxonomy of awareness judgments.

To our surprise, in their commentary, Sandberg, Bibby, and Overgaard (2013) question our statement that PAS “is a 4-point verbal scale that attempts to measure the quality of conscious experience directly” (Szczepanowski, Traczyk, Wierzchoń, & Cleeremans, 2013, p. 213) and suggest we used PAS in a different manner than originally intended. The authors claim that the scale should reflect the way participants prefer to report and propose to adjust the scale taxonomy depending on the type of stimuli used in the task rather than use – the 4-point scale each time. Thus, the scale should undergo a new calibration procedure whenever new stimuli are used. Alternatively, to avoid scale recalibration, they propose that amend the procedure so as to incorporate “(1) a full instruction explaining the meaning of each scale point in detail, (2) a pilot test with a good amount of trials (e.g. 30–50) in which the experimenter interrupts the subject frequently to ask about the use of the individual scale points (e.g. “I noticed you just reported “brief glimpse” – why did you do that/what did you mean with that/how would you define brief glimpse?”)” (Sandberg et al., 2013, p. 808).

In our view, those recommendations, far from solving any measurement issues, would rather substantially burden administration of the PAS scale, decreasing both its applicability and reliability. We address both points in the following, finding ourselves in the somewhat paradoxical position of having to defend PAS against criticism expressed by its very proponents.

First, it is not clear why Sandberg et al. (2013) propose to recalibrate the scale each time a new type of a stimuli are investigated. To our knowledge, there is no evidence that this is necessary. While the scale indeed originally stemmed from introspective-like experiments in which participants were extensively interviewed about their preferred categories to describe degrees of visual awareness (Ramsøy & Overgaard, 2004), few subsequent studies used this involved procedure. The pilot study itself was replicated a few times with different stimuli (Overgaard, Nielsen, & Fuglsang-Frederiksen, 2004; Overgaard, Rote, Mouridsen, & Ramsøy, 2006), always resulting in the very same taxonomy. All other studies used the 4-point scale. We also found at least two studies for which a pilot study was not reported at all (Sandberg et al., 2010; Sandberg, Bibby, Timmermans, Cleeremans, & Overgaard, 2011). Thus, it seems that PAS has typically been used in the manner we report in our study.

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Further, and from a broader methodological perspective, it also seems debatable whether the scale should in fact be recalibrated each time it is applied. If different types of stimuli indeed require different PAS taxonomies, it is possible that a new version of the scale, say, a 6-point scale, will be proposed at some point. But how would one then compare the results obtained with such a scale with those obtained using the standard, 4-point scale? And how could we know if this version of PAS is more sensitive than other subjective methods (see Sandberg et al., 2010)? To answer such questions would appear require new systematic comparisons, not only between PAS and other scales, but also between different versions of PAS. While this may be a worthy endeavor, it also runs the risk of seeing the PAS methodology become more and more similar to the very introspective reports it aimed to improve upon.

Second, Sandberg et al. (2013) suggest that one should, for each experiment, carry out a pilot in which the experimenters frequently ask how participants understand the points¹ proposed by the taxonomy. This suggestion appears somewhat problematic to us, for it seems to run the risk of distorting the reports. It is known issue (Danziger, 1980) with introspective reports that the more people are asked to think about the definition of response categories, the more biased the reports are. PAS was intended as a more direct (less influenced by metacognitive judgments) measure than other subjective measures of awareness (Ramsøy & Overgaard, 2004). If so, it should use categories that have intuitive appeal and that are easy to recognize. Studies up to date seem to show that participants are able to use PAS categories quite effectively with no additional explanation (which would be expected, as PAS was precisely designed so that its response categories correspond to those most often generated in introspective reports). Thus, we think that PAS should always involve a 4-point scale.

Finally, is PAS more sensitive than other subjective measures, and does it and whether describe participants' conscious experience in a more direct manner? Our studies show that CR is at least equally sensitive to PAS (Szczepanowski et al., 2013). In more recent work, we also showed that the exhaustiveness of PAS depends on the nature of the decisions required by the task and on the order of awareness ratings, suggesting that the taxonomy is not entirely free of metacognitive dimensions (Wierzchoń, Paulewicz, Asanowicz, Timmermans & Cleeremans, submitted for publication). This, however, is a matter for further research.

1. Uncited reference

Overgaard and Sandberg (2012).

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¹ We agree that full instruction explaining the meaning of each scale point might be useful and we use to add such in our own studies as well.