Basic colour names for 2D samples: Effects of presentation media and illuminants

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We have previously shown that colour memory is independent of presentation media and of the illuminants under which colours are viewed [Bloj et al, 2008, Proceedings of the 2nd Material & Sensation Meeting, Pau-France]. In the present study we investigate whether colour naming is also unaffected by these two factors.

Forty-seven colour samples that spread over the whole hue circle were chosen from the Natural Color System. They were presented either as real paper samples or as accurate computer simulations displayed on a calibrated monitor. The colour swatches could be presented under either a daylight illuminant (two intensities, 85 ('D1') or 50 cd/m^2 ('D2')) or a highly artificial purple illuminant (45cd/m^2 ('Lily')). The colour samples were shown in arrays of 16 (4 x 4 layout) and observers' task was to assign one of the eleven basic colour terms to each of the samples. Six observers repeated this colour naming task five times for each presentation medium and illuminant.

Analysis of colour naming for each medium revealed that each colour sample was assigned the same colour term in 86% (or 87%) of the time when presented as real papers (or on a monitor). This consistency was the same regardless of the illuminant under which colours were presented. Therefore, the consistency of colour naming is independent of presentation media and illuminants. This confirms our previous findings from the colour memory experiment.

However, on average, the same colour term for surface and display colours was only assigned in 73% of the cases. This level of agreement was highest for colour samples under daylight (D1-82%, D2-73%) and poor for Lily (65%). Despite the high consistency found in colour naming within a presentation medium and illuminant there are limitations to cross-media agreement.

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