

N. ITOH, K.SAGAWA. *Span of color similarity of older adults. Gerontechnology 2010;9(2):295; doi:10.4017/gt.2010.09.02.207.00* **Purpose** The purpose of this research is to make a database of optimal color combinations that can be easily distinguished by older adults, and to find out if there are cultural differences and/or similarities. **Method** Spans of color similarity were measured using a criterion of similarity, or same color appearance, in a sample of older and younger adults. In total, 130 older adults and 124 younger adults from four countries (Germany, Japan, Korea, USA) participated. In the experiment, 16 fundamental colors were used as reference colors: 5R4/14 (red), 5R5/12 (red), 5YR5/10 (red-yellow), 5YR7/12 (red-yellow), 5Y8/12 (yellow), 5Y5/6 (yellow), 5GY5/8 (yellow-green), 5G5/8 (green), 5BG5/8 (blue-green), 5B5/8 (blue), 5PB5/10 (purple-blue), 5P5/10 (purple), 5RP5/10 (purple-red), 1N (black), 5N (gray), and 9N (white). All colors were selected from the three dimensional Munsell color space (MCS). Each of the fundamental colors was compared against a total of 200 test color samples under two illumination conditions, 500 lx and 3 lx. Participants evaluated the similarity between test and reference colors under photopic (500 lx) and mesopic (3 lx) conditions. Additionally, measures of categorical color naming were conducted to find out the difference between the similarity of colors and categorical (cognitive) color grouping for the Japanese participants. **Results & Discussion** Compared with young unimpaired subjects, most of the span of similarity was slightly smaller in older adults under both lighting conditions. It was found that the span tended to be smaller in the direction of the saturation than the hue. In the case of low vision, the span was broader than for unimpaired subjects¹. This result showed aging effects on color similarity. The rate of incorrect answers (answer the same colors were different, or different colors were the same) was greater in older adults than younger adults. Even though the spans of similarity for older adults were smaller; it did not mean that the older adults could distinguish the colors well. It could be possible that color saturation was more difficult to perceive for older adults than younger adults. These results were found to be useful as guidelines for the usage of the colors used for visual information for older adults.

References

1. Itoh N, Sagawa K, Okamoto A, Mitani S, Yoshida T. Span of colour similarity of low vision. Abstract book of Vision 2008: The 9th International Conference on Low Vision 2008; CD-ROM; 135.4

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