D27 Color Perception and the Description of Evidence

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After attending this presentation, attendees will understand the correct use of the ISCC-NBS Dictionary of Color to describe the color of an item of evidence. This practice is tested by observers who need to define their own color description versus choosing one from a list of standardized color terms.

This presentation will impact the forensic community and/or humanity by introducing methods of standardized color description and the underlying reasons. The use of standardized color will diminish the potential misperception of a color description in the courtroom.

Color perception is an area which has been studied vastly in the past. It is an area which still needs development since color is a basic characteristic which is cited in physical evidence. Matching of color takes place in paint and fiber examinations on a micro-scale and color is frequently used on a macro-scale by forensic scientists and crime scene technicians in the description of evidence.

Forensic scientists should make use of a limited palette when describing the color of an item of evidence. Color may be attributed to an object in both subjective and objective manners. The determination of Munsell or CIE Lab color coordinates does not mean much to the lay- person or even a forensic scientist who does not have experience with color theory.

A number of subjects were tested by evaluating a palette of colors and assigning a color to each swatch in the palette. In the control study the same group was asked to link a list of colors from the ISCC-NBS Dictionary of Color to a different palette of colors. It was hypothesized that the accuracy of the two groups can be differentiated from each other where individuals are far better at linking a color to a given color swatch than being able to define the color for themselves.

The research aimed at evaluating the observers' definition of a color name such as turquoise. It has been described as bluish-green, light bluish-green, bright bluish-green, medium bluish-green and medium greenish-blue. This has indicated that amongst users there is no standard nomenclature of describing a color. When asked to link an ISCC-NBS color to a Munsell color chip (5PB 7/4, pale blue) the observers where provided with a list of colors namely, light blue, light bluish gray, moderate blue, grayish blue, bluish gray, pale blue, and very pale blue. Although none of the observers identified the color as pale blue, all of the selected colors were of the same or a little lower chroma. The Munsell colors are related to the fourth level of the six levels of the Universal Color Language. In the fourth level the steps of the hue and value components of a Munsell color are limited to one unit. The fourth level consists of 943 to 7056 colors. The colors used by the ISCC-NBS color naming system comprises of 267 color names (third level). Pale Blue, for example, extends over a chroma range of 4.5 units and the value over a range of two units. The first and second levels comprise of 13 and 29 colors respectively.

The provision of a juror of a more accurate description of a color will allow them in their own minds to make a color definition. Use of a standardized color nomenclature system in forensic science will also result in better testimony and minimized question regarding evidence description. Moving from the first level through the third level introduces more variations. Simply utilizing the fourth level would be too technical for a jury as is applied to casework analysis. This paper will provide support for the explicit use of at least the second level as descriptive colors in forensic casework.

Color, Perception, standardization

 ** Presenting Author*