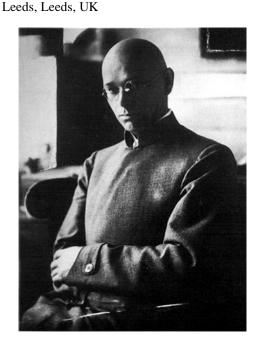
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Johannes Itten was a Swiss expressionist painter, designer, and teacher and one of the main pedagogical forces behind the Bauhaus in its earliest phase. His 1961 book *The Art of Color* presented color theory in a simplified form that largely excluded scientific developments from the

mid-nineteenth century onward. His approach has permeated much subsequent teaching of color in the arts.

Itten was born in Südern-Linden (Switzerland) on 11 November 1888. He trained and practiced as a teacher in Bern before studying under the abstract painters Eugène Gilliard in Geneva Adolf Hoelzel (1912)and in Stuttgart (1913-1916). He then ran his own art school in Vienna until the director of the Bauhaus in Weimar, Walter Gropius, appointed him as one of its first teachers in 1919. Itten played a key role in the development of the "preliminary course" that would teach students the basics of material characteristics, composition, and color. However, conflict involving Itten's ambitions, his promotion of the eastern-inspired Mazdaznan sect, and his opposition to involvement in commercially oriented design, by which Gropius hoped to validate the state-funded Bauhaus in a hostile political and economic climate, prompted Itten to leave in 1923. He subsequently taught in the Mazdaznan community in Zurich (1923–1926) before establishing an art and architecture school in Berlin (1926-1934) and directing the Advanced Vocational School for Textile Art in Krefeld (1932–1938). Itten then settled in Zurich. serving as director of the Museum and School of Applied Arts (1938–1953), the Silk Industry Vocational School (1943-1960), and the Rietberg Museum (1949–1956).

In his retirement Itten published his main book on color theory, *The Art of Color*, in 1961 [1–3]

and an account of his Bauhaus preliminary course, *Design and Form*, in 1963 [4]. Some of his ideas on color had appeared previously in the rare hand-printed *Tagebuch* of 1930 [5] and *Die Farbe*, an exhibition catalog from 1944 [6].

Color Star, Color Circle, and Color Sphere

At the Bauhaus, Itten taught color theory using a "color star" of radiating tint and shade scales that he printed as a lithograph in 1921. Its 12-hue scale was derived via Hoelzel from one Bezold had proposed as being perceptually equal, but was modified to align what Itten regarded as the warm-cool boundary (between yellow and yellow green) vertically. Unlike this 1921 scale, which placed yellow, "purple" (magenta), and cyan blue in a symmetrical triad, Itten's post-Bauhaus color diagrams were all structured around a symmetrical triad of perceptually pure red, yellow, and blue primaries, producing an unequal hue scale with larger perceptual steps in the yellow-green-blue sector. Three secondary hues (orange, green, and violet) and six intermediates (red-orange, yellow-orange, etc.) complete the circle. This change reflects Itten's adherence to the view, widely held in science until the mid-nineteenth century, that all object colors are mixtures of red, yellow, and blue. For a threedimensional model, Itten ignored the quantitative systems produced by Munsell and Ostwald and used a simple sphere externally resembling the one published by Runge in 1810. This sphere places the strongest colors of all hues on the equator, with the result that the vertical dimension does not represent lightness consistently.

Color Contrasts

Hoelzel incorporated a broad range of sources into a system of seven or eight "contrasts" of color that were central to his teaching. Itten simplified Hoelzel's classification and language into a list of seven contrasts that is one of the most widely cited elements of his system: contrast of hue, of light and dark, of cold and warm, of complements, of saturation, of extension, and simultaneous contrast.

Subjective and "Objective" Color Harmony

Itten encouraged exploration of the color preferences of the individual, but warned that this "subjective harmony" must often be subordinated to "objective" (though scientifically unexamined) laws. "Objective" harmony required balance of the three traditional primaries, which could be obtained (following Hoelzel) from complementary pairs, equilateral and isosceles triads, and rectangular, square, and trapezoidal tetrads in his 12-hue circle, but also by tilting these shapes in any direction within his color sphere. Balance also required that the three primaries be present in a set ratio that Hoelzel had derived ultimately from Schopenhauer, which Itten but misattributed to Goethe. Unbalanced, "discordant" combinations could however be used for expressive effect.

Color Expression

Itten also regarded color expression as involving objective rules and presented a system of "dictionary" meanings of colors and color combinations, in which complementary colors were expected to have opposite meanings, secondary colors were expected to combine the meanings of the primaries they "contain," and meanings could be modified by contrast effects with surrounding colors.

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