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ANVUR Agenzia Nazionale Valutazione sistema Universitario e Ricerca

APeJ Academic Publications eJournal

BASE Bielefeld Academic Search Engine

DBH Database for statistikk om høyere utdanning

DOAJ Directory of Open Access Journals

EZB Elektronische Zeitschriftenbibliothek Regensburg

JURN Search tool for open access content

ROAD Directory of Open Access scholarly Resources

SCOPUS

ZDB Zeitschriftendatenbank

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- Completeness of the reported work
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- Clarity of tables, graphs, and illustrations
- Importance to color researchers
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12. Color and Communication/Marketing. Graphics, communication, packaging, lettering, exposure, advertising.

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Chromatic Weaves: Color through Rule and Perception in the Work of Anni Albers

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ABSTRACT

In the early 20th century, the Bauhaus, as heir to the artistic avant-garde, left a profound mark on the history of color in the arts. Its artists developed a “chromatic imprinting”, which led them to apply color according to recurring methods and principles, revealing striking chromatic similarities across their works.

This paper investigates the role of color in the work of Anni Albers, a central figure in the Bauhaus Weaving Workshop. She overcame gender inequality to become a pioneering artist, designer, writer, and educator, whose influence spans various fields, from fashion to graphic arts. While her work on weaving is well-known and widely recognized, her exploration of the synthesis between material, structure, and color has received less scholarly attention. Her pictorial weavings are an inseparable fusion of matter and color, elevating the loom from the realm of applied arts to the artistic one, making her a pioneer of Fiber Art. The themes of weaving, interlacing, rhythm, variation, and harmony transcend aesthetics, unfolding through a synesthetic approach that appeals to both tactile and chromatic perception, in a sensory as well as intellectual levels.

This article seeks to revisit Albers’s work through a chromatic lens, from the color sensibility inherited from the Bauhaus to her later explorations at Black Mountain College. The goal is to analyze how the cultural and artistic education of her time influenced her chromatic choices, in the interplay between structure, material, and color, and to identify the elements that have inspired contemporary visual languages.

KEYWORDS Anni Albers, Bauhaus, Textiles, Visual Patterns, Black Mountain College, Wall Hanging, Pictorial Weaving.

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1. Introduction

Color, as a cultural and design code, situates both author and work within their historical and spatial context. Each historical period has its own chromatic palette, whose hues, tonalities, and applications are expressions of its cultural and artistic thought, as well as scientific advancements. In using color, artists inevitably engage with the beliefs, symbolism, and production techniques of their era. These chromatic codes, embedded with cultural and perceptual information, enable comparisons between works of art, revealing aesthetic and perceptual constants specific to each historical period. Chromatic choices are never neutral but are shaped by the cultural meanings and symbolic values attributed to them within a given society, a perspective widely explored in Pastoureau's historical studies of color (Pastoureau, 2023). In this way, color becomes an effective thread for cross-disciplinary interpretations of artistic production.

At the beginning of the twentieth century, the Bauhaus, as the heir to the artistic avant-garde (Polano, 1979; De Fusco, 2009; Dardi and Pasca, 2019), left a strong mark on the use of color across the visual and plastic arts (Gage, 2024). This led Bauhaus-affiliated artists to develop a kind of "chromatic imprinting": a lasting form of learning that guided their consistent use of color. Strong chromatic analogies are particularly evident in the repeated use of primary hues, such as yellow, red, and blue, within geometric configurations. These parallels can be observed across the paintings of Piet Mondrian, the work of Johannes Itten, the furniture designs of Gerrit Rietveld, the graphic design of Herbert Bayer, the spatial installations of Lilly Reich, and the visual and textile works of Joseph and Anni Albers.

From this perspective, this paper focuses on the use of color in Anni Albers's work, an artist and designer whose chromatic research, though not explicitly theorized in her numerous writings, is deeply rooted in the teachings of the Bauhaus, from which she absorbed its color principles. Her textile compositions immediately evoke the visual and chromatic patterns of Mondrian and Klee (Weber and Asbaghi, 1999, p. 32, 33), highlighting shared features such as saturated colors, checkerboard grids, and block-like linear compositions (Klee, 1953). Similar patterns appear in the glass works of Joseph Albers [1]. Over time she developed a perfect synthesis of material and color inherited from the Bauhaus, which she progressively enriched through her dialogue with Pre-Columbian cultures. This paper adopts a comparative and formal methodology, focusing on the visual and chromatic analysis of Anni Albers's textile works from distinct phases of her career: her time at the Bauhaus and her later years at Black Mountain College. It aims to trace the evolution of

her chromatic grammar in relation to the cultural and educational contexts in which she worked, with particular attention to the interplay between structure, material, and color. The analysis is based on a formal reading of the patterns and color choices, integrated with comparisons to Bauhaus color theory to the influence of Latin American cultures that shaped her later production. Ultimately, the study seeks to identify the core chromatic elements in her work that have inspired contemporary visual languages, from Fiber Art to fashion.

2. The Chromatic Grammar of Modernism: Color as Structure

Annelise Elsa Frieda Fleishmann (1899-1994), known as Anni Albers was an artist deeply rooted in her time, and a designer shaped by her training at the Bauhaus. The school's innovative pedagogical model, particularly the preparatory course (Vorkurs), promoted an experimental and material-focused approach to form, color, and structure (Argan, 2021; Droste, 2006). Grounded in a thorough cultural and artistic education, she developed a design approach where color, form, and material, articulated through patterns, threads, and chromatic schemes, constituted the inseparable structural core of her textiles. This approach, rooted in Semperian theory [2], was part of the broader visual shift that began with the avant-garde of the early twentieth century and was carried forward by the Bauhaus and the Modern Movement (Argan, 2021; Dardi and Pasca, 2009; Droste, 2006). During those years, chromatic modernity took shape, as color abandoned its traditional decorative or mimetic role and emerged as an autonomous language with a distinct grammatical structure (Gage, 2024, p. 207), capable of conveying emotions and abstract thought (Brusatin, 2000; Dardi and Pasca, 2009). Advancements in color science were marked by the development of perceptual color systems, such as Albert Munsell's system (1915) and Wilhelm Ostwald's star model (1919), which set objective standards for measuring and classifying color based on human perception (Arnold, 2019; Dal Falco, 2023, p. 53; Falcinelli, 2017). Chromatic tones and techniques evolved alongside modern color theories.

Mondrian theorized that the colors of modernity were primary, flat, and well-defined, and should be 'clearly determined' and used in contrast with non-colors like white, black, and gray (Holtzman, 1975, p.183). Within the De Stijl movement, in painting, architecture, and design, color became a true constructive material: a medium, a principle, and a compositional framework for a space now free and essential (Polano, 1979; Zevi, 1974). In architecture, Van Doesburg Van Doesburg recognized that color, along with light, could modulate volumes and

shape spatial perception (Van Doesburg, 1924). Rietveld applied a chromatic hierarchy of primary colors (Gage, 2024, p. 321), yellow, red, and blue, in both furniture, such as the *Red-Blue Chair* (1918), and architecture, such as the *Schröder House* (Utrecht, 1924), to define functional elements (García, 2011, p. 18).

The Bauhaus absorbed and reinterpreted the principles of the neoplastic avant-gardes, translating Mondrian's theoretical writings into German for study. The use of primary colors, yellow, red, and blue, as structural elements in composition was adopted, reinforcing the central interrelationship between color, form, and material. Gropius promoted these hues within the school as "readily accessible to everyone" (Arnold, 2019). However, the school's interest in color extended beyond formal concerns, embracing a broader inquiry into chromatic and visual experience. Drawing from Gestalt theory [3], which explains vision, color was investigated as both a physical and chemical substance with psychological effects on human perception (Gage, 2024; Wingler, 1977). Considerable attention was given to color combinations, harmonies, and their perceptual effects, leading to the formulation of the theory of color relativity (Albers, 2013). Johannes Itten, Paul Klee (Klee, 1959), and Josef Albers laid the foundations of a modern theory of color. Their experimental and theoretical contributions resulted in two of the most influential texts on the use of color (Ridler, 2022). Itten developed a theory based on contrast harmony (Itten, 1982), while Albers explored the perceptual phenomena arising from the juxtaposition of pure colors, what he termed "mixtures", demonstrating how such interactions generate distinct visual responses (Albers, 2023). This attention to visual perception and color relativity played a key role in Anni Albers's textile and compositional work. Her understanding of color extended into the realm of sensory experience.

3. Grid and Color: the Bauhaus Legacy in Anni Albers' Work

In her oeuvre, from early wall hangings such as *Black-White-Yellow* (1926) to later pictorial weaving compositions like *Monte Albán* (1940) and *Red Meander* (1954), the Bauhaus imprint is evident not only in her choice of 'basic colors', but more so in the significance she gives to color. Albers's artistic journey, which began at the Bauhaus Weaving Workshop [4] in 1922 and continued into the 1960s at Black Mountain College, was shaped by two key influences: Paul Klee's art and the pre-Columbian textile traditions (Weber and Asbaghi, 1999). Albers developed the hallmark of her work: a structural language unifying color, form, and material, engaging both tactile and visual perception in a synesthetic way [5]. Color

became a dynamic compositional force, carefully balanced to avoid overpowering other elements (Danilowitz and Weber, 2000). As a student of Paul Klee in the Composition Course, Albers learned to approach color like thread, as a structural pigment (Weber, 1999).



Fig. 1. Paul Klee, *Architecture of the Plain* (1923).

In *Architecture of the Plain* (1923) (Fig.1), Klee employed geometric color layering (Ledford, 2020, p. 83), a technique Albers mirrored in *Black-White-Yellow* (1926), (Fig 2) organizing color blocks in a similarly structured framework (Chiarenza,2022). Her visual language was constructed through the interplay of grid, hue, and fiber. Following neoplastic principles, Albers assigned distinct colors to threads based on their structural function, reinforcing the woven fabric's architectural logic (Danilowitz and Weber, 2000, p. 63). Mondrian used specific colors for structural directions, yellow for verticals, blue for horizontals, red for diagonals (Gage, 2024); similarly, Rietveld applied color hierarchies to distinguish architectural elements in the Schröder House. Working within the spatial constraints of the loom, where warp and weft form a generative matrix of imagery, Albers adopted Klee's concept of the grid as a compositional tool for organizing color. The grid, a foundational principle inherited from both Bauhaus and Klee, was central to Albers's method, along with her conviction, expressed in her writings, that textiles are grounded in logical structure (Albers, 2023). At the Bauhaus, the grid was a key tool in color theory: Klee used it to analyze the dynamic

interactions of color in the viewer's perception, and I then to teach chromatic composition (Ridler, 2022).



Fig. 2. Anni Albers, *Black-White-Yellow*, 1926. Wall hanging, three-ply weave. Gouache and pencil on paper, 34.9 x 23.8 cm. The Museum of Modern Art, New York/Scala, Firenze. © The Josef and Anni Albers Foundation

Albers uses the grid to structure her textiles, integrating both visual and tactile dimensions. The chromatic component, carefully calibrated through yarns and colors, enhances the structure. She thoroughly analyzed the interaction between material and chromatic rendering, recognizing that each fiber reflects or absorbs light in distinct ways. This principle is especially apparent in her use of white and light tones: in works like *Black-White-Yellow*, for instance, alternating silk and cotton creates additional color variations based on the differing sheen of the materials (Chiarenza, 2022). These differences not only enhance visual contrast but also evoke tactile sensations, such as the softness of silk or the roughness of cotton. Albers enhanced color intensity by leveraging fibers' light absorption, which varies with weaving techniques; for instance, double and triple weaves revealed additional colors through thread interlacing (Troy, 1994). In this system, rhythm emerged as the third essential dimension, made visible through the movement of the loom and the sequencing of color (Vincent, 2019). Both visual and chromatic rhythm convey concepts such as pause, slowness, and speed, which are enhanced by the use of color. Chromatic variations are grounded in the

studies of Joseph Albers (Toral, 2016), who posited that color perception is influenced by its juxtaposition (Fig 3). For instance, red appears larger and more prominent next to white, but smaller and recessed next to black. (Troy, 1994).

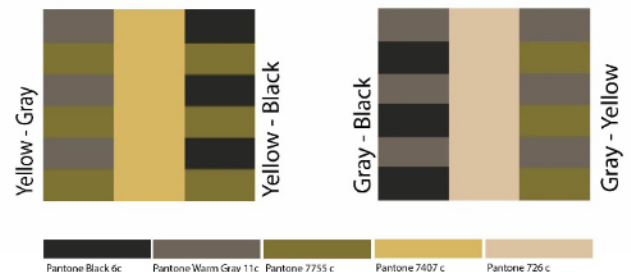


Fig. 3. Details of Color Interaction in Black, White, and Yellow: The same hue appears differently depending on its context. Yellow looks more luminous next to gray, just as gray appears lighter beside black. (Schemes by the author).

4. Sign, Color, and Memory: Anni Albers and Andean Influences

Anni Albers' artistic practice entered a second phase in 1933, following her move to the United States and her appointment at Black Mountain College in North Carolina [6]. During this period, pre-Columbian cultures became a major influence, not as a departure from the ideas of Paul Klee and De Stijl, but as a means of clarifying and reaffirming them. Fascinated by these civilizations, Albers traveled extensively in Mexico and South America with her husband, Josef, visiting pre-Colombian sites and collecting Mesoamerican sculpture, Andean textiles, and artifacts [7]. This engagement with Mesoamerican and Andean traditions reveals Albers's interest in tracing visual and structural continuities across ancient American cultures, showing how these textile forms and symbolic systems, consistent with Bauhaus principles, offered her a new lens to revisit Klee and Mondrian (Troy, 2002). The intricate geometric and chromatic patterns of Andean textiles, such as modular-based tunics, became both formal and technical models for Albers's exploration of textiles as art (Troy, 1999, p. 30). Through them, she discovered how signs, such as symbolic or pictographic motifs, and color could communicate meaning beyond aesthetic function.

Albers began experimenting with the more intricate weaving techniques rooted in Andean traditions, such as double weave structures combined with openwork techniques (Troy, 1994, p.287), while simultaneously broadening her chromatic palette. The previously dominant reds, blacks, and yellows were replaced by

subdued, earthy hues evocative of natural elements like stone, grass, and sand, as evident in works like *Monte Albán* (1936). These neutral hues, beige, black, and ivory, echo the arid, sunlit landscapes of Central America (Weber et al., 1985). In this context, color acquired an intensified symbolic function, acting as a conduit for cultural memory and spatial evocation. Albers moved away from the rigid framework of vertical and horizontal lines, employing a system of floating threads to construct shifting chromatic planes that produced a visual language incorporating pictographic, calligraphic, and ideographic elements (Jacob, 1998, cited in Chiarenza; Troy, 1994).



Fig. 4. Anni Albers, *Ancient Writing*, 1936, Woven fabric, 59 1/4 x 44' (150.5 x 111.8 cm). Smithsonian American Art Museum/Art Resource/Scala, Firenze. © The Josef and Anni Albers Foundation

In *Ancient Writing* (1936), (Fig. 4) the rectangular forms resemble symbols or calligraphic characters from an undeciphered script, with the use of gold signifying that “these ancient words are sacred” (Weber et al., 1985, p. 90).

Her mastery of weaving enabled a renewed focus on materiality, allowing her to experiment with new sensory dynamics through the use of natural materials (Troy V. 1994). She incorporated elements such as grass, corn kernels, and metal shavings into her textiles to explore what she referred to as “the matter of which the world is made” (Tsang-de Lyster, n.d.). This interplay between

visual and tactile qualities exemplifies what has been described by art historians as “touching through the visual” (Vincent, 2019), a synesthetic approach extensively explored by Bauhaus artists. In this context, Albers’s work may also be read in light of Alois Riegl’s modern theory of form transmission across cultures and media. Her focus on textile structures as vehicles of cultural meaning challenges traditional boundaries between fine and applied arts, and highlights the migratory nature of visual languages, a theme central to her lifelong artistic and pedagogical inquiry.

5. Weaving as Painting: Towards Fiber Art

Moving beyond earlier frameworks of vertical-horizontal structure and color-blocking, Albers’s compositions evolved into more intricate geometries with a redefined chromatic approach. She abandoned the Bauhaus palette in favor of natural, earthy tones inspired by Andean aesthetics.



Fig. 5 a, Anni Albers, *Two*, 1952, Linen, cotton, and rayon. 18 1/2 x 40 1/4 in. (47 x 102.2 cm)
© 2024 The Josef and Anni Albers Foundation/SIAE, Rome
Photo: Tim Nighswander/Imaging4Art

Works from this phase, such as *Two* (1952) (Fig. 5a), and *Red Meander* (1954) (Fig. 5b), resemble paintings more than textiles, expressed in an abstract visual language. Starting in 1947, Albers began fusing Modernist geometries and chromatic schemes with the cryptic motifs of Andean textiles, paving the way for her ‘multi-weaving’ tapestries (Candela and Plinsbury, 2023). These works, termed ‘pictorial weavings’ (Weber, 1985), allowed her to explore pure artistic expression through thread (Candela and Plinsbury, 2023). In these, color became a visual code, with labyrinthine lines woven into the grid, echoing the cryptic patterns of pre-Columbian artifacts, where imagery often functioned as a form of written language.



Fig. 5 b, Anni Albers, Red Meanders, 1954, Cotton. 20 1/2 x 14 3/4 in. (52 x 37.5 cm)

On the right comparison with fragment of a man's tunic (Peru, 7th-10th c.)

Photo: Tim Nighswander/Imaging4Art

GABRIELE CROPPI/Scala, Firenze. © The Josef and Anni Albers Foundation/Siae, Rome .

The result was artwork shaped by the intrinsic properties of materials and the processes of weaving, pushing the medium toward an autonomous artistic identity. Tsangde Lyster notes this as weaving's shift from craft to true art, expressed via a visual language integrating rhythm, materiality, light, and color. This shift establishes Anni Albers as a pioneer of Fiber Art (Chiarenza, 2022), confirmed by her 1949 solo exhibition at MoMA, the first for a textile artist, affirming her role in legitimizing weaving as autonomous art (Kiese, 2023).

Candela (2023) notes that Albers's practice, teaching, and writing acted as a textile manifesto, inspiring 1960s–70s artists like Sheila Hicks, Magdalena Abakanowicz, and Olga de Amaral, who helped define Fiber Art. This new language, distinct from traditional weaving, was formalized at the 1962 International Tapestry Biennial in Lausanne, by the "Centre International de la Tapisserie Ancienne et Moderne," where the term "Fiber Art" was coined. The movement intertwined with feminism, reclaiming female-associated crafts as legitimate art. Weaving and textile arts, as highlighted in the 2022 MET exhibition *Weaving Abstraction in Ancient and Modern Art*, became powerful

vehicles for feminist expression and cultural critique. Among the featured artists were several inspired by Albers and the Colombian tradition. Notably, Sheila Hicks, an American artist trained at Yale, extended her legacy by revisiting and reinterpreting pre-Columbian textiles, broadening abstraction through grids, transparency, modular structures, and three-dimensionality (Candela, 2023).

Continuing this legacy is Olga de Amaral, a Colombian artist profoundly influenced by Albers's use of color and geometry. De Amaral has created works inspired by the landscapes and cultural memory of her native land, from the high plateaus of the Andes to tropical valleys and plains. Her 2025 solo exhibition at the Fondation Cartier reaffirmed the central role of fiber-based abstraction in contemporary visual art.

Albers's influence continues to inspire artists working across textile, design, and visual art. She not only helped transform weaving into a recognized artistic discipline, but also developed a unique chromatic and structural language that continues to resonate in contemporary art and design.



Fig. 6. Interpretation of Anni Albers's palette evolution: from the simple tones of her Bauhaus period to the natural hues of her pictorial weavings, this scheme illustrates the shift in her use of color as both a structural element and an expressive tool.

6. Conclusions

Anni Albers' work bridges the modernist rationality of the Bauhaus and the material and symbolic sensibility of pre-Columbian cultures. Initially, her visual grammar was dominated by primary, bold, and structural colors, inherited from Modernist theories. Later, these tones soften, becoming earthy, evocative, tied to the landscape and memory, while maintaining the principles of her modernist training. Color, structured on a grid, constructs the image through the connection of material and form. This evolution is not merely aesthetic but conceptual: color shifts from being a structural element that organizes the visual space to becoming a vehicle of emotion, memory, and meaning. Albers translated the logic of the grid and pattern into a profound visual language, in which material and color merge into a synesthetic code. In this process, color was never merely ornamental but always a medium of meaning, a voice that spoke through the weave. As she herself wrote: "I have learned to listen to [the threads] and to speak their language" (Danilowitz, 2000, p. 75). In that language, color has always had, and still has, a fundamental voice.

7. Conflict of interest declaration

The author declare that there is no conflict of interest regarding the publication of this paper

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9. Short biography of the author(s)

Carla Farina - Carla Farina, an architect and PhD in Architectural and Design Technologies from Sapienza University in Rome, is currently a researcher in Design at the University of Tuscia in Viterbo. She is also a professor of Design Methodologies at the Product and Fashion Design Degree Course at Universitas Mercatorum. She was a Visiting Scientist at the MIT Media Lab, Cambridge Massachusetts, from 2006 to 2016, and from 2018 to 2023, she taught exhibit design at the degree course in design at the Università Sapienza of Rome. Her scientific interests include the topic of new technologies applied to lived spaces, particularly Cultural Spaces, and their impact on individual behavior.

Notes

[1] Glasswork as Lauben (1929), Pergola (1929), City (1928).

[2] German architect Gottfried Semper, in *The Four Elements of Architecture* (1851), traced architectural form back to textile practices, highlighting weaving as a structural and decorative principle. Anni Albers draws on this theory by shifting the focus from the figurative representation of yarn to the weave itself, its underlying structural grid, and the use of polychromy (Quitzsich & Semper, 1991; S. Chairenza, 2022).

[3] Gestalt Theory was introduced by Max Wertheimer and further developed by Kurt Koffka and Wolfgang Köhler in the 1920s. The term Gestalt, meaning "shape" or "form" in German, studies the principle how images are perceived and refers to the idea that perception is structured as unified wholes rather than isolated parts. Wertheimer's 1923 publication *Laws of Organization in Perceptual Forms* had a significant influence on modern art and design, particularly in the Bauhaus context, where visual form and color were studied as interdependent perceptual phenomena.

[4] The Bauhaus Weaving Workshop, founded in 1919 and led by Gunta Stölzl from 1925, became a key site of innovation. Despite being initially

reserved for women, it launched the careers of artists like Anni Albers and Marli Ehrman (Smith, 2014).

[5] Synesthesia refers to a perceptual phenomenon in which multiple senses interact and overlap spontaneously and involuntarily. Kandinsky used it to associate color with sound. In the context of Anni Albers's work, this concept refers to how the visual qualities of color and texture elicit tactile sensations, creating a multisensory experience.

[6] Black Mountain College (1933–1957), founded in North Carolina on John Dewey's educational principles, promoted integration of the arts. It hosted figures like Josef and Anni Albers, John Cage, and Buckminster Fuller, becoming a key site for avant-garde experimentation.

[7] From 1934, Anni and Josef Albers traveled through Mexico and Peru, visiting major Pre-Columbian sites such as Chichen Itza, Monte Albán, Teotihuacan, Tikal, Machu Picchu, and Chan Chan (Weber, 1979). They collected over 1,000 Mesoamerican sculptural objects and Andean textiles, which subsequently informed their teaching and research.

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