

# Itten's seven colour contrasts – a review

## Part I. Early contrast theories and the road to Itten's contrast theory

Robert Hirschler and Andreas Schwarz\*

*Budapest, Hungary*

*\*Essen, Germany*

*Email: robert@hirschler.hu*

In the first part of the article, we describe the origins of Itten's contrast theory and the road leading up to the seven contrasts as it took its final form in *The Art of Color*<sup>1</sup>. In the second part we shall discuss in detail Itten's seven contrasts. Finally, in the third part, we shall present the problems caused by students and teachers mechanically memorising and then blindly following the colour contrast canon without consideration for the core concepts which underlie it.

*Received 27 December 2022; revised 10 April 2023; accepted 12 May 2023*

*Published online: 21 June 2023*

*Colours are perceived in all natural conditions of viewing in either a spatial or a temporal contrast to other colours [1].*

### Introduction

Johannes Itten was a Swiss painter, designer, teacher, writer and theorist, who is best known as a Bauhaus<sup>2</sup> teacher and the author of the best-selling *The Art of Color*. Although he only spent little more than three years (1919-1923) at the Bauhaus, he was the most influential master and deputy director of the school. In his early thirties, he had an extraordinary personality. One of his former students<sup>3</sup> later remembered him as “a master [who] was either profoundly admired or, by his opponents (of whom there were many), equally profoundly hated.”

---

<sup>1</sup> In this article we've been using British spelling, but, when referring to the English edition of *The Art of Color*, and also in all the quotes from the English edition, we have maintained the original spelling.

<sup>2</sup> The Bauhaus was arguably the most influential design school of the 20<sup>th</sup> century, functioning in Germany between 1919 and 1933. Some of the most famous 20<sup>th</sup> century artists were among its masters, including Kandinsky, Klee, Albers and Moholy-Nagy.

<sup>3</sup> Citroen, Paul (1970) *Mazdaznan at the Bauhaus*. In: Neumann Eckhard (ed) *Bauhaus and Bauhaus people* (Trans: Richter E, Lorman A) VanNostrand Reinhold, New York, p.44.

Over a hundred years later Itten can still strongly divide those who are interested in his work. His *The Art of Colour* is without any doubt the most influential textbook in the field of colour education<sup>4</sup> with the majority of current textbooks quoting him and using his ubiquitous colour circle. His opponents tend to criticise him because many of his statements do not stand up to the scrutiny of modern colour science, without giving due credit to his pioneering work in making the subject of colour popular in the art and design community.

Itten's contrast theory is a fundamental part of his teaching. His seven contrasts are known, described, and taught in many parts of the world, yet they are not without problems and contradictions. He identified seven fundamental categories of contrast in colour theory. We shall list them with a very brief description here and discuss them in detail in Part II of this article.

#### 1. *Contrast of hue*

This refers simply to vivid colours of different hues. They will inevitably generate most of the other contrasts as well.

#### 2. *Light – dark contrast*

It is easy to understand, but when comparing colours of different hues, the judgment of lighter/darker may be difficult.

#### 3. *Cold-warm contrast*

According to Briggs<sup>5</sup> “in traditional colour theory the adjectives "warm" and "cool" are very commonly used to label distinctions of hue, for example "warm yellow" for reddish yellow and "cool yellow" for greenish yellow.”

#### 4. *Complementary contrast*

This, as we shall see, is the most controversial contrast, because the concept of “complementary colours” is ill-defined.

#### 5. *Simultaneous contrast*

This is the best known of all contrasts, and it is always there when two different colours are placed side-by-side or one surrounding the other. According to Briggs<sup>6</sup> “in simultaneous contrast the appearance of colours moves away from that of the surrounding colour in all three dimensions of surface colour - hue, chroma and lightness”.

#### 6. *Contrast of saturation*

Contrast of saturation is the contrast between vivid (pure, intense) colours and muted (dull, diluted) colours.

#### 7. *Contrast of extension*

Contrast of extension involves the relative areas of two or more colour patches which have different lightness and vividness (and may have different hues).

With his theory of colour contrasts, Itten made a contribution to cultural history that should not be underestimated and that remains as a fact. However, for the understanding of a differentiated use of colour, be it receptive or productive, be it in the field of design, liberal art or even education, the seven colour contrasts do not come close to meeting today's level of knowledge and present-day requirements.

<sup>4</sup> Cf. Calvo Ivanovic, I. (2022). *Colour Design Training Itinerary, A framework for the teaching and learning of colour in the design discipline*. [Ph.D. in Design Research Thesis, Politecnico di Milano]. POLITesi - Digital archive of Ph.D. and postgraduate theses.

<sup>5</sup> Briggs, David: <http://www.huevaluechroma.com/077.php>

<sup>6</sup> Briggs, David: <http://www.huevaluechroma.com/035.php>

If you enter the term "colour contrast" in the relevant internet search engines, thousands of pages are displayed, most of which refer to the seven colour contrasts according to Johannes Itten. This repertoire of colour contrasts, popularised by Itten, now seems to have established itself as a fixed cultural element beyond its use in the fields of the fine arts, art education and design. Itten's colour contrasts have become part of international common knowledge, due to the widespread distribution of Itten's *The Art of Color*, which was published in 1961 and translated into thirteen languages with a total print run of more than 500.000 copies [2]. This success is not surprising because the concepts covered in the book are easy to understand and easy to teach.

However, Itten's colour contrast repertoire is by no means a homogeneous group and has been increasingly criticised, especially in the field of art education, where the colour contrasts are firmly established [3-4]. Albrecht [5] found both Hölzel's and Itten's contrast theories problematic. Grässli [6] discusses the effect of Itten's colour theory in Switzerland and points out that albeit the colour contrasts prove to be good teaching pieces, there are far better ways of distinguishing between colours, and to structure and differentiate colour as a whole. Bendin [7] went so far as to suggest new contrast categories in critical consequence of the '*Rule of the seven contrasts*'. Csillag [8], in her article on the applicability of Itten's colour contrast as basic principles for use in art and design, is rather ambivalent: "*Itten has made an unquestionable contribution to art and design with his color concepts, nonetheless, when reading his book, it is notable the lack of scientific and academic research underlying the concepts.*"

We fully share Csillag's ambivalence. Itten is undoubtedly one of the most influential (if not the most influential) colour educator, but in this article we cannot fail to point out the shortcoming of his colour theory and of his seven colour contrasts.

Our intention with this article is threefold (hence the three parts). We wanted to record the (not very well known) path leading up to the seven contrasts as they are known and taught today; discuss them in view of modern colour theory (Itten's was way behind his time already in the 1960's, but in many respects even in the 1920's); and point out for educators that (a) this is not what and how colour should be taught and (b) this is not in the best interest of either students or teachers to teach the dogma of the seven contrast.

There was no possibility to colour manage the images in this article, they are only illustrations to present to the reader an approximate idea. For critical study the original printed editions should be used.

## Early contrast theories – Field Barnard and Hölzel<sup>7</sup>

Itten's predecessors are either forgotten or barely known due to the omnipresence of Itten's colour contrast canon in print media and in digital form. In fact, apart from Itten, there are comparatively few authors whose work contain a more or less closed colour contrast repertoire. These include George Field, George Barnard and Adolf Hölzel who form a direct line of tradition leading up to Johannes Itten<sup>8</sup>. The term "colour contrast" is found in the relevant literature with different meanings, which are then usually further differentiated. For the presentation of the colour contrast theories dealt with here, it is sufficient to refer to three colour characteristics: hue, brightness/lightness and chromaticness/chroma.

<sup>7</sup>This section is based on Schwarz: Colour contrast theories and their genesis [9].

<sup>8</sup>We didn't include Michel Eugène Chevreul, whose work on simultaneous contrast is arguably the best known and to whom Itten refers to a number of times, but he does not have a colour contrast canon as the others mentioned do.

Correspondingly named contrasts are then used to describe certain colour constellations. Sometimes, however, these contrasts also have the function of an aesthetic judgement, for example when "complementary contrast", which can be understood as a special case of colour contrasts, is associated with ideas of harmony or when talking about warm-cold contrast.

### **George Field**

The English colour manufacturer and colour theorist George Field (1777-1854) published his influential work entitled *Chromatography* in 1835 [10]; four years before Chevreul's famous book on simultaneous contrast [11] was published. The pivotal point of this very speculative work on colours, in which the fields of physics, physiology and aesthetics are linked via the belief in universal analogies, is the theory of the so-called "chromatic equivalents", which, on the basis of the subtractive mixing ratios of the primary colours yellow, red and blue, specifies the numerical proportions of harmonic colour combinations, such as colour pairs and triads of "primary, secondary and tertiary colours" and includes the classical colour pairs of the "chromatic equivalents".<sup>9</sup>

In the third chapter of his book - *On the Relations of Colours* - which focuses entirely on the requirements of colouring in painting, Field seamlessly follows the colour contrast views of his predecessors. What is entirely new, however, is the systematised compilation into an independent canon of colour contrasts embedded in this chapter. Overall, Field distinguishes five contrasts, each of which is responsible for different image functions. In this first systematic colour contrast theory, the "chromatic equivalents" cover the "contrast of tones" (contrast of hues), which refers to the "complementary colours" and the compounds derived from them, which form the basis for colour harmony [12]. Secondly, Field mentions the "contrast of shadows", which refers to the gradations of light and dark and determines the effects of light and shadow. This is followed by the "contrast of warmth and coolness", the extremes of which are formed by the colours blue and orange, which are particularly emphasised by an axis in the "table of chromatic equivalents" (Figure 1).

According to Field, the "contrast of warmth and coolness" is responsible for the general effect or mood of a painting. The fourth is the "contrast of colour and neutrality", which comes into play, among other things, in the gradations within the local colours, in aerial perspective, and in the distribution of shadows and greys. Finally, Field mentions the "contrast of colouring", which, according to him, comes about through "transparency and opacity". Contrary to what the name suggests, however, this contrast does not refer to a possible contrast between opaque and transparent colours, but corresponds to light and shadow, or to white and black, which means that it can no longer be clearly distinguished from the "contrast of shadows". As in some older painting treatises, Field also insists that colour contrasts should not be applied in their pure form but should be softened by transitions. Moreover, he points out the importance of harmonising the contrasts well with each other.

Field's colour contrasts refer primarily to the appearance of colour constellations in artwork, i.e. in the artistic and creative disciplines (fine arts, design, art-history, etc.) Only the "contrast of warm and cold" falls into the area of subjectively perceived colour effects and thus belongs to a category of its own. Field, however, firmly anchors the poles of cold and warm colours in the "table of chromatic equivalents", so that they are assigned fixed and thus describable positions in his colour order.

---

<sup>9</sup> Details on Field's "chromatic equivalents" are discussed in Gage: *A Romantic Colourman: George Field and British Art*. The Volume of the Walpole Society, Vol. 63 (2001), pp. 1-73.

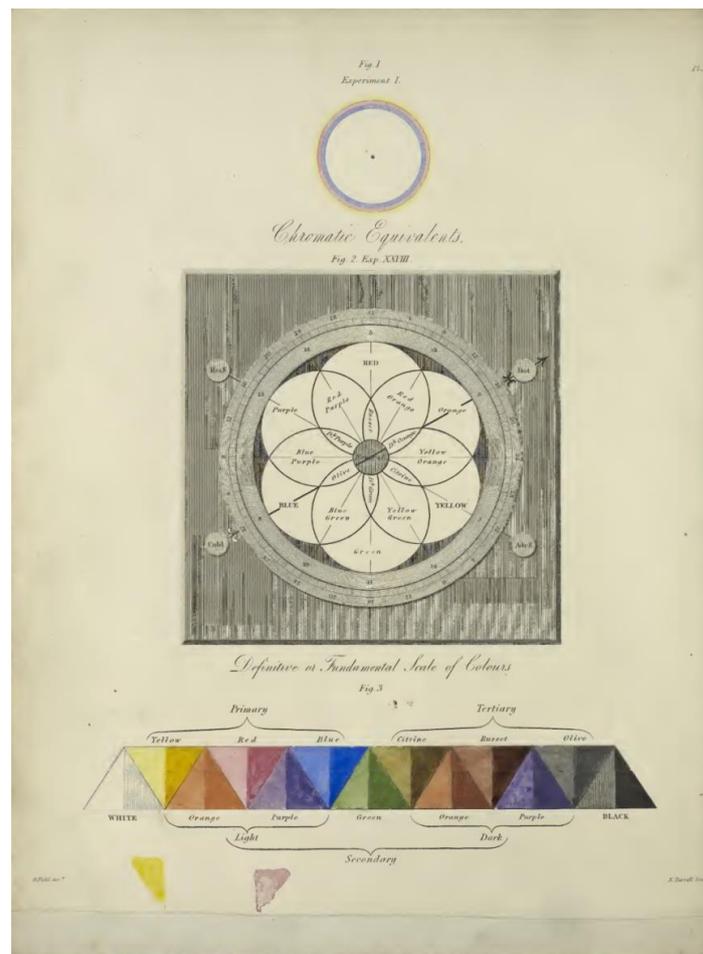


Figure 1: George Field: *Table of Chromatic Equivalents* [10]: Frontispiece.

### George Barnard

The British drawing teacher George Barnard (1807-1890) was also active as an author of various textbooks for painting. His work *The Theory and Practice of Landscape Painting in Water Colours* published in 1855 contains, for the first time, a chapter dedicated to the "Contrasts of Colour" [13]. Barnard recommends Field's *Chromatography* to his students and readers and endorses his theory of "primary, secondary and tertiary colours", which also play a role in his colour contrasts. The core of his chapter on "Colour Contrasts" Barnard refers extensively to Chevreul, whose work, first published in 1839 (four years after Field's work was published).

Barnard introduces his students to the application of contrasts in painting by first showing how colour contrasts can be systematically created. The system reinforces the basic colour contrasts theory and is illustrated by means of a table, which contains the first colour contrast table with coloured examples in the form of "rude blots of colour" for the individual contrasts (Figure 2).

The table shows a total of twelve colour contrasts, which are divided into four contrast groups. The starting point and basis is the contrast of white and black, to which all other colours are always added in changing combinations. Next the "primary colours" yellow, red, and blue appear combined with white and black. Then, in squares 5. and 6. on Figure 2. the "complementary" colour pairs red-green and blue-orange are added. Squares 7. to 9. contain mainly the "secondary colours" in combination with white and black, whereby in square 7 yellow is added to violet so that this "complementary" colour pair is also covered. Finally squares 10. to 12. are dominated by the "tertiary colours" in combination with the "primary colours" together with white and black. Although the colour contrast table follows a system

derived from theory, the individual colour contrasts are assessed individually in each case, whereby not only the simultaneous contrast effect is discussed, but functional and aesthetic assessments are also made alongside it.



Figure 2: Barnard's illustrations of colour contrasts [13].

From this panel of abstract colour contrast combinations, Barnard finally proceeds in his chapter on colour contrasts and discusses the use and possible combinations of contrasts with regard to the requirements of painting, whereby, among other things, the effects of warm and cold, the chiaroscuro, colour transitions, colour harmony, etc. are discussed in detail and illustrated by means of further coloured examples with naturalistically rendered motifs. The colour contrasts are thus incorporated into an overall concept that fully corresponds to the ideas and requirements of the genre of landscape painting of the time.

### **Adolf Hölzel**

Unlike his predecessors, the painter and university lecturer Adolf Hölzel (1853-1934) did not adhere to a firmly established colour theory that went hand in hand with an academic view of painting. Rather, from about 1903 onwards, he intensively studied the works of numerous colour theorists, including

Bezold, Brücke, Rood and Schreiber, and it is to his credit that he was open to accept new ideas<sup>10,11</sup>. In this way, Hölzel's colour-theoretical statements took on a rather eclectic character, which corresponded to the search for new possibilities of expression in the increasingly abstract painting of modernism at the time.

A central component of Hölzel's colour theory are the colour contrasts, with which he seamlessly follows Field, whom he does not explicitly refer to. Field's theory of colours, especially his theory of "chromatic equivalents", was widely known at the time, but was strongly criticised throughout by the more progressive authors such as Brücke, Bezold and Rood, who were influenced by Helmholtz's *Physiological Optics*. This could be a possible reason why Field is mentioned by Hölzel only once in one of his unpublished writings of about 1916 directly following his theory of contrasts. In fact, Hölzel only refers (slightly reinterpreted) to Field's colour contrast repertoire, which is not mentioned by the critics, but completely omits his theory of "chromatic equivalents". As early as 1904, Hölzel listed his colour contrasts in a letter to his pupil Bettina Feistel-Rohmeder as part of a private correspondence course [15].

"In relation to colour, we have the following opposites, which are so important that you must remember them very much and make a special note of them.

1. *Colour contrasts in and of themselves (such as yellow and blue);*
2. *Cold and warm;*
3. *Light and dark (dark blue and light yellow);*
4. *The complementary opposites;*
5. *Quantity contrasts (much blue, little yellow and vice versa);*
6. *Intensity contrasts (vivid yellow to dull blue);*
7. *The enhancement of the above into coloured and neutral (yellow e.g. as colour on a blue-grey background)."*

This list of colour contrasts then appears unchanged in his previously unpublished work *Das Bild ist eine Welt für sich* (The picture is a world of its own), written around 1916, in which Field is also mentioned<sup>12</sup>. However, Hölzel's colour contrast theory became known primarily through Carry van Biema, another of his students, who published his explanations of colour theory in 1930 under the title *Farben and Formen als lebendige Kräfte* (Colours and shapes as living forces) [17]. Even if the name only appears once, it would be more than a coincidence if Field's colour contrasts had not been the inspiration for Hölzel's because of the striking similarities. Hölzel essentially takes over Field's five colour contrasts, interprets them slightly differently and adds two more. The "contrast of tones" now becomes the "contrast of colours in and of themselves", which is no longer limited to certain selected colours, but emphasises the simple but important fact that all colours, even in the smallest nuances

---

<sup>10</sup> In Hölzel's own words: "Above all, we do not have any spectral colours for our work, nor do we have a small bowl of light into which we can dip our brushes, so spectral colours and the sciences associated with them are of secondary importance to us. However, with the urge for thorough and so necessary research and knowledge of our profession and its nature, any one-sidedness must of course be excluded, and so in my school, apart from Goethe and Schopenhauer, apart from the new and latest that we can obtain, Helmholtz, Bezold, Rood, Schreiber, Brücke, Chevreul, Wundt, Raehlmann, Jon Burnet, Owen Jones, Bartolo Brandt, Kreutzer, Kallab, as well as Ostwald and others, have been worked through and utilised theoretically, but also practically." [14].

<sup>11</sup> All translations are by the authors except where noted otherwise.

<sup>12</sup> For the early evidence of colour contrasts in Hölzel's work, thanks are due to Ulrich Röthke, who provided the decisive references to the relevant passages in the text and made available Hölzel's previously unpublished letters and texts.

among themselves, form contrasts in the composition! The "contrast of shades" becomes the "light-dark contrast", which, similar to Field, refers to both the bright and the achromatic colours.

Furthermore, Hölzel directly adopts the "Cold-Warm contrast", referring to Goethe's colour wheel, whose warm and cold sides are delimited from each other by the neutral colours green and purple. However, Hölzel also points out that the sensation of warm and cold can change depending on the surrounding or neighbouring colour. Referring to Goethe's "ruling colours"<sup>13</sup>, which he regards as the central core of colour theory, Hölzel assigns to the "complementary colours", which are already included in Field's first colour contrast, a colour contrast of their own, the "complementary contrast", which, similar to Field's, can be formed from triads (e.g. yellow, red, blue) as well as from pairs of two. The "contrast of luminous and matt" probably corresponds to Hölzel's interpretation of Field's somewhat unclear "contrast of colouring". Hölzel understands it as the contrast of different colour intensities, ranging from dull, weak, broken and greyed to strong, intense and luminous.

The "contrast of much-little" goes back to Schopenhauer's lightness series (Figure 3), from which the area proportions of the colours are derived. These areas - in order to appear balanced - must be in a corresponding numerical ratio, which depends on their so-called "light value".

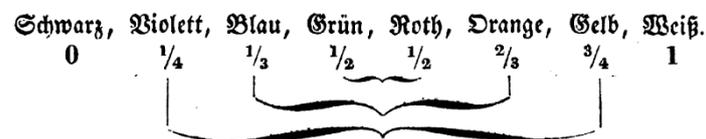


Figure 3: Arthur Schopenhauer's lightness series in which the numerical values of the (complementary) contrast colours each add up to the value 1 in relation to white [20].

Thus, for example, to be balanced, the bright luminous yellow needs a considerably smaller area than a darker violet. It is interesting to note here that Hölzel took the numbers from Schopenhauer through Schreiber, but the latter already noted that "The above figures are hypothetical, and their validity cannot be proved either empirically or theoretically, but Schopenhauer takes them for granted, as it were." [21: 58]. The idea of the relative areas also comes probably from Schreiber (and not Schopenhauer) as can be seen in the comparison of the two 'harmonious circles' by Schreiber and Hölzel (Figure 4). Such figures, or even the relative areas, cannot be found in Schopenhauer's writings.

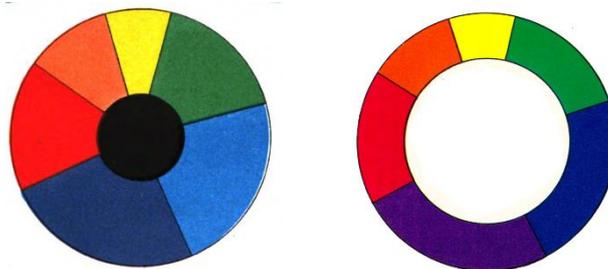


Figure 4: Schreiber's (left) [21 Tafel I]), and Hölzel's (right) [based on 17:106] "harmonious circles" loosely based on Schopenhauer's lightness series.

<sup>13</sup> We have a certain difficulty in finding the proper English expression for 'fordernde Farbe' (literal translation: *demanding colour*) used in German. It comes directly from Goethe, who used it (and its counterpart 'geforderte Farbe') in many places in his Theory of colors. There is no good direct translation for these. Eastlake [18] in some places translates them as 'original opposite' resp. 'compensatory colours', in other places simply ignores the expressions. Burwick [19] simply uses the original German words. Goethe himself, however, in his *Von den farbigen Schatten* uses the words "Herrschendes Licht" resp. "Subordiniertes Licht" and we may loosely translate them as 'ruling light' and 'secondary light'. However, talking about colours "secondary colour" has a completely different meaning, so we would rather use "evoked colour".

Here Schreiber warns again: “However, Schopenhauer's numbers are not incontestable, and even less can others lay claim to them who use them as a basis. But it is a question here of expressing proportions, for which a certain measure is lacking, by means of approximately correct or at least not improbable numbers, and thus to give the learner a clue.” [21: 61]. Alas, neither Hölzel, nor later Itten took heed of this advice.

Taken directly from Field is the "contrast of colour to non-colour", which Hölzel now refers to as the combination of bright colours with black, white or grey. Hölzel names and knows simultaneous contrast, but he is also aware of the special category it forms and therefore does not mix it up with the other colour contributions. Despite the eclectic character of his theory, Hölzel maintains a certain coherence within his colour contrast theory by distinguishing between the scientific and the artistic categories of meaning. When one considers that modern painting at the time was open to synaesthetic influences puts the transgressions within Hölzel's colour contrast canon into perspective. Hölzel also does not treat the colour contrasts in isolation at all, but always with regard to their function in the picture and in their changing relationships, which he repeatedly demonstrated to his students at the Stuttgart Academy with the help of sketches (Figure 5).



Figure 5: The interpenetration of the contrasts of light and dark with warm and cold, created as a rapid sketch drawn by Hölzel during the explanation in the classroom. After [17: 192].

## From Hölzel to Itten's seven contrasts as published in the Art of Color

Johannes Itten's world-wide claim to fame is twofold: he was an influential teacher at the famous Bauhaus between 1919 and 1923, and 40 years later he published his book the Art of Color in which he recorded and explained his colour theory.

He first mentions colour contrasts in his Stuttgart diaries [22:59] and he considered them the most significant part of colour theory throughout his teaching, so much so that the discussion and illustration of the seven contrasts take up about half of his Art of Color. Itten's first notes show only one important change from Hölzel's original (in addition to changes in the order): instead of the '*extension of the intensity contrast into coloured and neutral*' there appears simultaneous contrast. In his final version of 1961 [33], he uses the term "quality contrast" instead of "intensity".

<ol style="list-style-type: none"> <li>1. Farbgegensätze an und für sich</li> <li>2. Kalt u. warm</li> <li>3. Hell u. dunkel</li> <li>4. Die complementären Gegensätze</li> <li>5. Quantitätsgegensätze</li> <li>6. Intensitätsgegensätze</li> <li>7. der Steigerung des Satzes 6 in farbig u. neutral</li> </ol>	<ol style="list-style-type: none"> <li>1. Farben an und für sich</li> <li>2. Hell dunkel</li> <li>3. Kalt warm</li> <li>4. Komplementär</li> <li>5. Simultan</li> <li>6. Quantität</li> <li>7. Intensität</li> </ol>	<ol style="list-style-type: none"> <li>1. Farbe-an-sich-Kontrast</li> <li>2. Hell-Dunkel-Kontrast</li> <li>3. Kalt-Warm Kontrast</li> <li>4. Komplementär-Kontrast</li> <li>5. Simultan-Kontrast</li> <li>6. Qualitäts-Kontrast</li> <li>7. Quantitäts-Kontrast</li> </ol>
{Hölzel 1904}	{Itten 1913-1914}	{Itten 1961}

Table 1: The colour contrasts according to Hölzel's original list from 1904 [15]; from Itten's 1913-1914 Stuttgart diary [22] and the final version in the 1961 Art of Color [33].

### 1913-1914 Stuttgart

Itten's first thoughts on colour contrasts were documented in his Stuttgart diary, he simply listed the seven contrasts with no explanation (see the middle column in Table 1).

### 1919-1923 Weimar (Bauhaus)

We don't know very much of the colour content of Itten's courses at the Bauhaus. In the first serious monograph on Bauhaus colour, Poling [23] only mentions the following:

*"The basic principle underlying Itten's Preliminary Course was his 'general contrast theory'.*

*In this he was once again indebted to Hölzel, but he carried further the idea of grouping perceptual phenomena in contrasting pairs."*

Poling then quotes Itten from a 1965 contribution in Kepes's "Education of Vision":

*"Forms and colors were discussed and presented in any number of polar contrasts. These contrasts can be presented as intellectual concepts: big-small, long-short, wide-narrow, thick-thin, light-dark, straight-curved, pointed-blunt, much-little, hard-soft, smooth-rough, light-heavy, transparent-opaque, steady-intermittent; there are also the seven color contrasts and the four directions in space. The students had to present these various contrasts, separately and in combinations, in a manner that allowed one's senses to perceive them convincingly."* [24]

Poling then discusses six of the seven contrasts in quite some detail but based on Itten's 1930 Berlin diary rather than contemporary sources from the Bauhaus years. Unfortunately, there is very little direct information available on what colour content Itten actually taught at the Bauhaus. Düchting [25: 28] in his book on Bauhaus colour confirms, that:

*[i]t is difficult to reconstruct what part the colour theory played in Itten's preliminary course.*

*... In the minutes of the council of masters of 20.10.1922, the proposal was made to have Itten set up his own colour course, perhaps an indication of an actual deficit in the first Bauhaus years or a sign of a new interest awakened by Itten. However, since Itten withdrew more and more from the Bauhaus and his teaching obligations after his letter of resignation of 4.10.1922, the establishment of such a course no longer came about.*

What we seem to know of the treatment of the seven contrasts during the Preliminary Course at the Bauhaus comes from Itten himself, but only in the form of a recollection in 1963 [26]. However, from the book it is not quite clear what had been taught at the Bauhaus and what were Itten's mature thoughts developed over the following 40 years.

### 1926-1934 Die Itten-Schule (Berlin)

In 1926 Itten established his own art school in Berlin, where colour studies were not part of the general studies – as they had been in the Weimar Bauhaus – but given in a dedicated, three-part colour course: Impressive, Constructive and Expressive Colour Studies [27: 172-173]. The colour contrasts were part of the constructive colour studies, together with colour order and colour composition. It is interesting to note that in this course only six contrasts were taught: Light-Dark, Cold-Warm, Complementary, Simultaneous, Quality and Quantity Contrasts. Contrast of Hue (“Colours in and of Themselves”) were not treated separately, as shown on the illustration from Itten's 1930 Berlin diary (Figure 6).

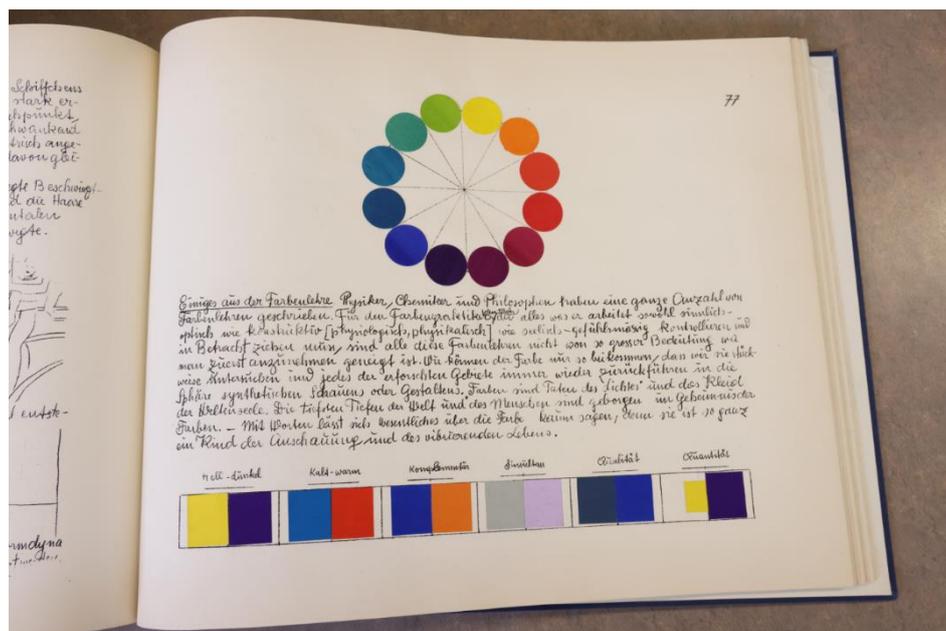


Figure 6: A page from Itten's 1930 Berlin diary [28] showing the six colour contrasts. Photo taken from No 138, copy with Itten's handwritten dedication to Gyula Pap.

The Diary “contains the theory of form and design as it was developed by Johannes Itten at the beginning of the twenties at the Bauhaus Weimar in the VORKURS” [28: copyright page]. Of the colour contrasts Itten said: “[s]ince 6 contrasts are effective within the colour totality, the same law applies to the field of colours as to the forms. The contrasts must be in an exact strength ratio to each other so that a strong, unambiguous, and pure “timbre” (Klang) can be created.” [28: 71]. All the contrasts are then explained in one or two paragraphs, and these already contain the gist of the much more detailed discussion in the Art of Color.

### **1938-1944 Zürich / Wattwill**

In 1938 Itten settled in Zurich as Director of the School of Arts and Crafts (Kunstgewerbeschule), Director of the Arts and Crafts Museum and later, from 1943 also as Director of the Zurich Textile School. He had good connections with the textile industry, for example, in July 1940 he gave a colour course in Wattwill at the invitation of the traditional textile company Heberlein [29]. Apparently, the course was aimed at people who were not artists, but professionals in the textile and fashion industry, yet the course consisted mainly of the discussion of the seven colour contrasts.

In his introduction to the course Itten stated [29: 3]:

*“The effect of the colour contrasts on a fabric pattern, for example, will determine whether it is liked and perceived as beautiful. This determines whether it can be sold with good success.*

*For people who are professionally involved in the creation of such coloured fabric patterns, it is essential to learn and understand the basic, typical colour contrast effects thoroughly. Their conscious application enables us to safely achieve the desired effects. That is the task and aim of this course.”*

Itten then listed the well-known seven contrasts, with his examples taken from the textile and fashion industry, such as the one on simultaneous contrast [29: 4]:

*“The simultaneous contrast is a very tricky contrast. Because it has the character of a sensory illusion, it leads to errors and disagreements if not observed. There are a number of examples of this:*

*a) A pattern of an expensive necktie fabric appeared vulgar because a black thread was interwoven with a very bright red, which appeared green as a result of the simultaneous effect.*

*b) In one company, the colour samples were stitched onto work slips of a bright orange colour. As a result, the samples took on a bluish discoloration, which led to errors and complaints.”*

During the course the students had to do exercises for all seven contrasts, and many of these come back as illustrations (with minor modifications, if any) in the Art of Color. The first contrast discussed is the Light-Dark Contrast, which Itten considered extremely important. Charts of different hues but equal lightness were prepared, and then Itten explains how lightness differences can easily be mistaken for saturation differences. He illustrates this point on a chart, illustrating the lightness values of the most vivid colours of different hues (Figure 7).

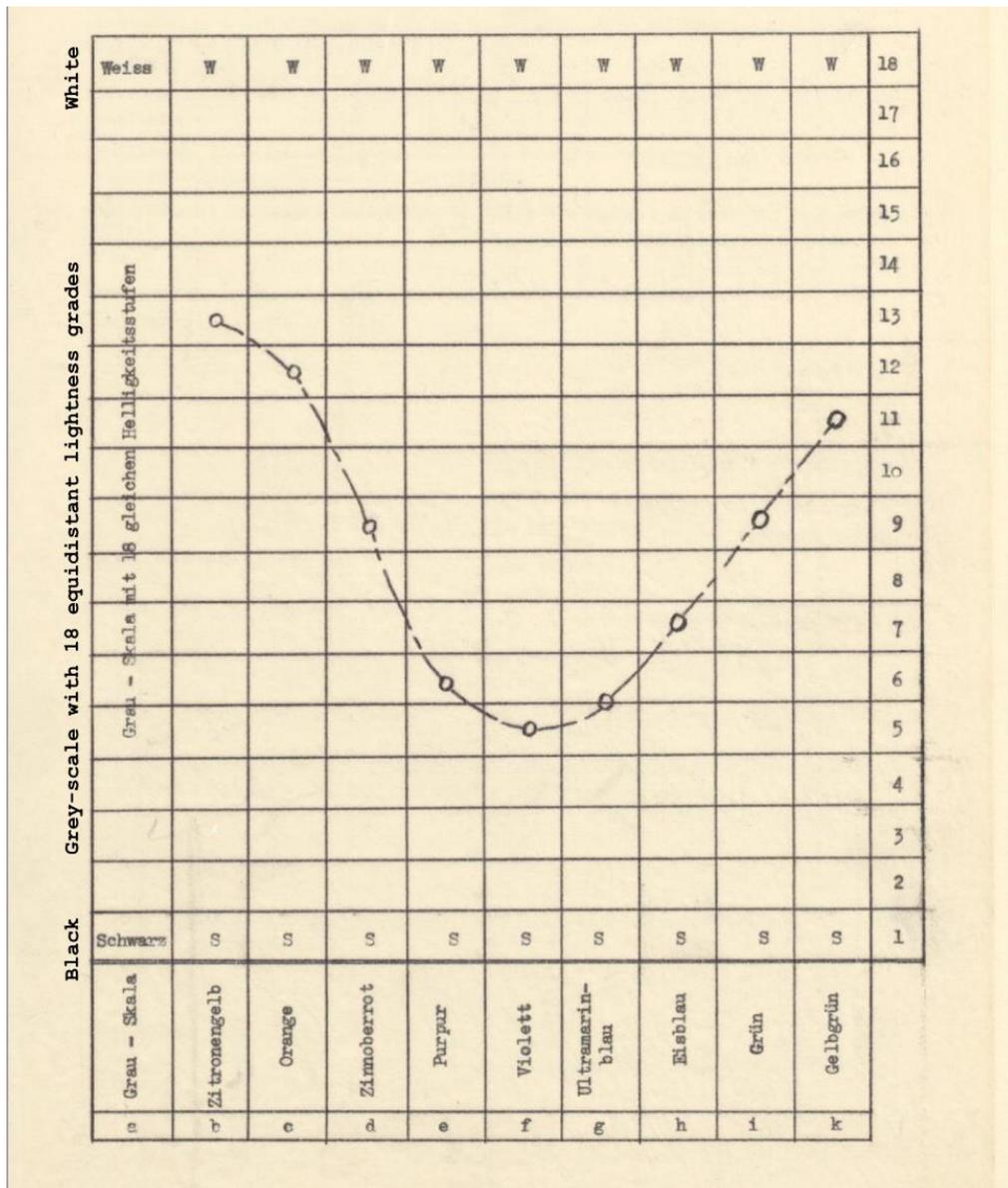


Figure 7: Lightness values (grey-scale) of vivid colours of different hues. Based on [30: 8].

An interesting exercise on hue contrast (Kontrast der Farbe an sich – „colour in itself contrast”) is illustrated in Figure 8. with the same combination in three variations.

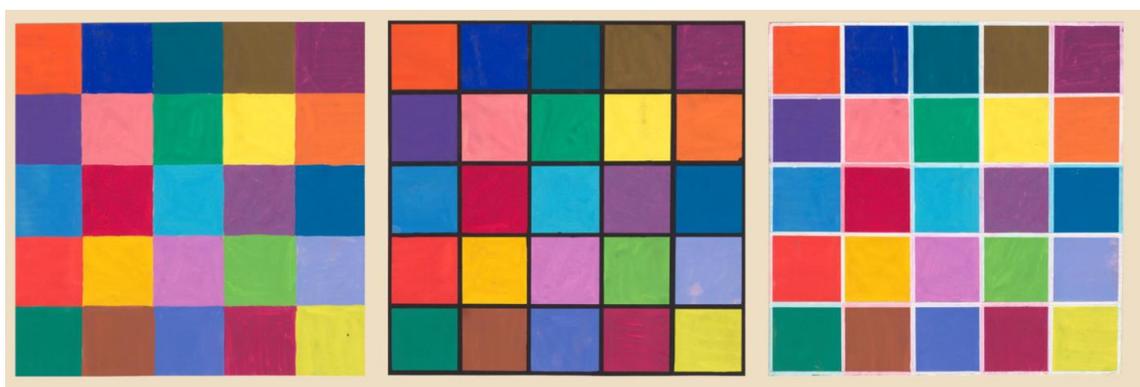


Figure 8: Exercises with “colour in itself” contrast from Itten’s 1940 Wattwill course [30: 11-13].

Itten emphasizes the importance of the contours (which, of course goes much beyond the simple hue contrast), and in examples of figure paintings showing “colour in itself contrast” he explains that in these **all 7 contrasts are present**. This important fact is most often ignored in modern (simplified) explanations of Itten’s colour contrasts, and in Part III. we shall come back to the consequences of this simplification.

All other contrasts are treated with detailed exercises, and in the case of quality (saturation) contrast we can find an interesting illustration (Figure 9) which found its way nearly unaltered (except for the hues) into the Art of Color.

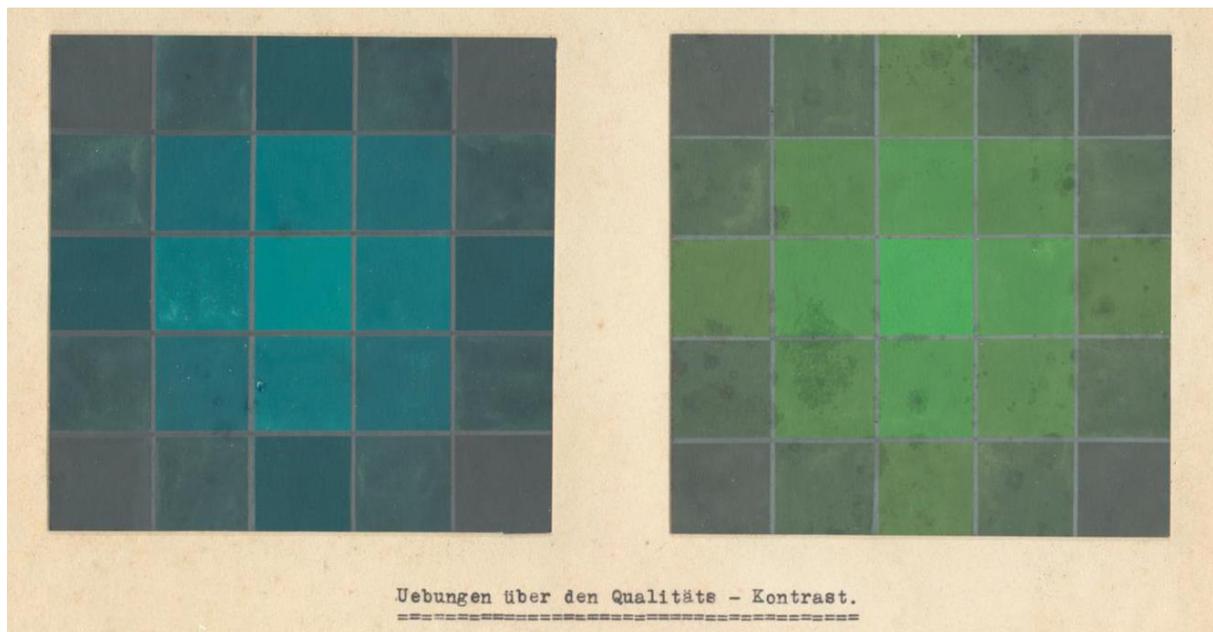


Figure 9: Exercises with quality (saturation) contrast from Itten’s 1940 Wattwill course [30: 23].

For this exercise Itten explains that all the colours (the grey squares in the corners and the four variations of each hue, the most vivid being in the centre) must be of the same lightness.

*“The task is a good test for mastering the light-dark contrast. If the light-dark values for the compositions are kept correctly constant, there must be no light-dark differences between the grid lines and the squares.” [29: 22].*

### 1950’s - preparation of the Art of Color

As Wagner [31] pointed out “[a] great part of Itten’s colour-theoretical notes in the diaries from Krefeld and Zurich, as well as the entire preparatory work on the Art of Colour from the 1950’s, have not yet been researched”, but there are some fragments with interesting stretches showing Itten’s way of thinking when preparing the Art of Color.

Itten was very interested in the role of colours in the fashion industry, always linking it to the seven contrasts. In one of his notes [32], he wrote:

*“Whoever knows the versatile effects and possibilities of [these colour contrasts] can easily determine which of these contrasts determine the appearance of the fashion colour contrasts. Conversely, knowledge of these contrast effects makes it possible to work with the colours in a safe way...”*

*Of course, fashion designers also have to base their new collections on purely commercial considerations. Considerations of various kinds can be the reason why suddenly these or those shades, which were often frowned upon for years and were considered unwearable for a long time for this or that reason, are now widely included in the fashion colour chart. Colours are "used up" and shades that have not been used for a long time appear surprisingly new and "interesting" one day. These main sources are the important backgrounds for the emergence of new fashionable colours. These colour novelties are then elaborated by opponent and complementary colours, depending on the colour expression sought. Each colour expression is achieved and characterised by one of the seven possible colour contrasts or by combinations of two or three such colour contrasts."*

## Summary

Itten's seven colour contrasts are, even today, known, taught (and sometimes criticised) in most art and design schools and textbooks. They were taken, with minor modifications, from his teacher, Hölzel, who was inspired by earlier sources such as the works of George Field and George Barnard. Itten first mentioned the seven contrasts as early as 1913, and in the following nearly five decades they became the focal point of his teaching and his writings, culminating in *The Art of Color*.

## Appendix: Translation and glossary of Itten's terms for colour attributes

Colour terminology is very complex and by far not well defined. We shall not go into detail here, because it would be way beyond the scope of this article, but we find it important to make it clear what we mean by the terms we use, and just as importantly to make it clear what terms Itten used in the German original and how they were translated into English by Ernst van Haagen, the translator of both the 1961 and the 1973 editions of *The Art of Color* and the 1970 edition of *The Elements of Color*. Whenever we quote from *The Art of Color* we are using the English terms as used in the translation, but where necessary we draw attention to possible misunderstandings.

In the three parts of this article, we are using Hue, Lightness and Vividness as the three attributes of colour.

- Hue – *Farbe, Farbton, Ton, Hauptfarbe*

Hue is one of the perceptual attributes of colour, judged by its similarity to one of the colours red, yellow, green or blue, or to a combination of adjacent pairs of these colours arranged in a closed ring<sup>14</sup>. In everyday language it is often used in the sense of "colour", and Itten himself often used simply *Farbe* when he meant "Hue" (and it was thus translated in the English edition.) The usage of *Ton/Farbton* by Itten is inconsequent, sometimes he means Hue, but in other cases means Lightness.

<sup>14</sup> Based on the CIE e-ILV definition <https://cie.co.at/eilvterm/17-22-067>

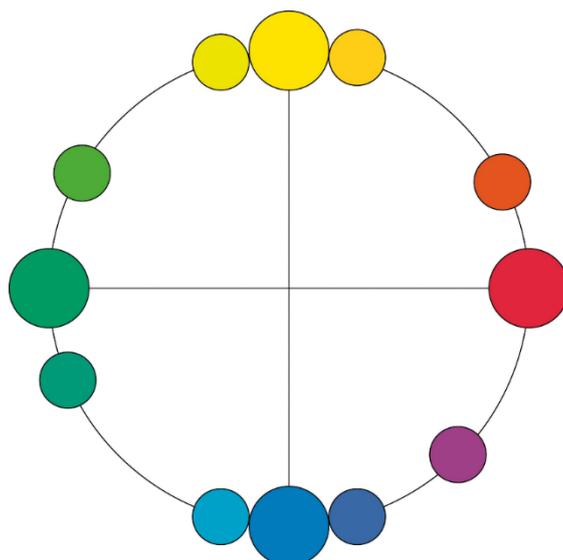


Figure 10: Colours of different hues arranged according to their similarity to one of the colours red, yellow, green and blue. The unique hues are shown as large, coloured circles. Courtesy of and © Roy Berns [33].

- **Lightness** – *Helligkeit, Farbton, Tonwert, Valeur*

The attribute of colour which describes how light or dark a colour looks, for example the greyscale which runs from light (white) to dark (black). It is used to describe coloured objects rather than coloured lights<sup>15</sup>.

Itten's own usage (in the original) is not consequent. In one place [34: 17] he writes that “Wenn wir Helligkeits- oder Dunkelheitsgrad einer Farbe bestimmen wollen, so sprechen wir von ihrem Tonwert oder Valeur. Es ist also der *Farbton*, den wir damit bezeichnen.“ In the translation [35: 17] it is: „When we are to specify the degree of lightness or darkness of a color, we may speak of its *quantity* or *brilliance*. This is what I occasionally refer to as tonal gradation.” Yet some pages later, when describing his 12-hue colour circle Itten writes [34: 34]: “Man muß die zwölf Farbtöne so genau sehen, wie ein Musiker die zwölf Töne seiner Tonleiter genau hört” which was translated as “I must see my twelve tones as precisely as a musician hears the twelve tones of his chromatic scale” [35: 34]. “Farbton” here means hue and not lightness. The translator often uses “luminosity” or “brilliance” for lightness.

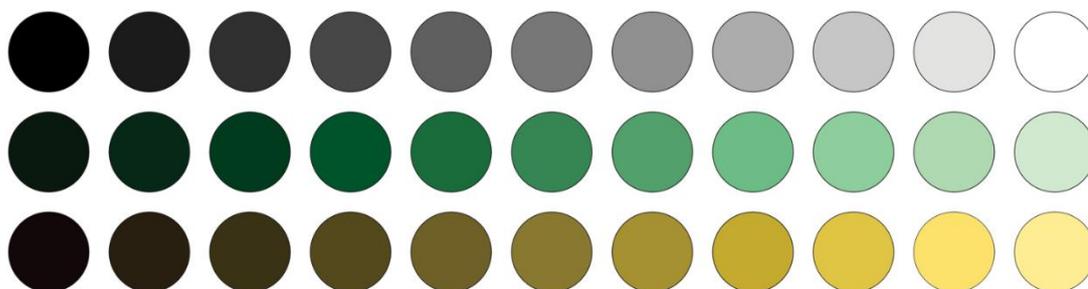


Figure 11: Neutral, green, and yellow colours increasing in lightness from left to right. Courtesy of and © Roy Berns [33].

<sup>15</sup> Based on the definition proposed by the CLP Vocabulary (unpublished).

- **Vividness** – *Sättigung, Reinheit, Leuchtkraft*

The attribute of colour describing how intense or muted a colour looks, or how close to neutral (achromatic) or far from it a colour looks. Related terms are chromatic strength, purity, intensity. Vividness in the everyday sense is easily understandable and not tied to any colour order system such as Chroma (Munsell) or Chromaticness (NCS), and not as difficult to interpret as Saturation. Details on the definition and usage of these terms can be found in Briggs [36]. Vividness was more precisely defined by Berns [37]. In *The Art of Color* “saturation”, “undiluted colors” and “purity” are used.

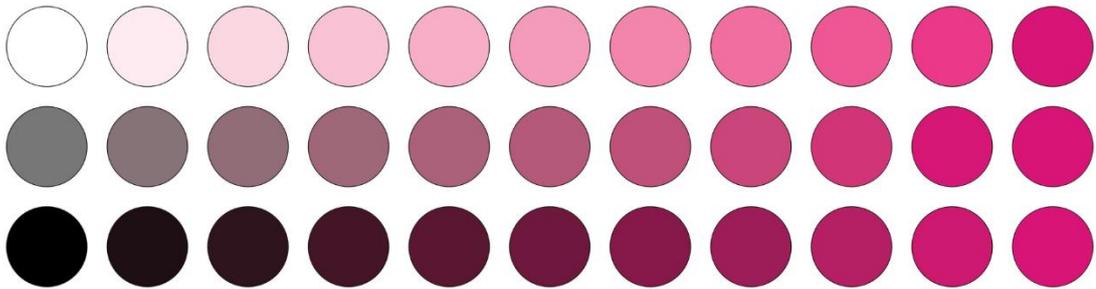


Figure 11: Neutral, green, and yellow colours increasing in lightness from left to right.  
Courtesy of and © Roy Berns [33].

## References

1. CLP (2022) – <https://colourliteracy.org/> – last accessed 20 July 2022
2. Wick R (2009), Positionen der Itten-Rezeption in der schulischen Kunstpädagogik nach 1945, *idem, Bauhaus. Kunst und Pädagogik* (Positions of Itten’s Reception in School Art Education after 1945, *idem, Bauhaus. Art and Pedagogy*), 517, Oberhausen.
3. Schwarz A (2003), Die Farbkontraste und der Kunstunterricht In: *idem, Immer wieder Itten ...? (The colour contrasts and art teaching In: idem, Itten again and again ...?)*, *Themenheft 1 des BDK-NRW*, 7-14, Düsseldorf.
4. Schwarz A and Schmuck F (2008), Farbe sehen lernen - Mischkurs, Bildanalyse & kritische Betrachtung der Theorien von Itten und Küppers (Learning to See Colour - Mixing Course, Image Analysis & Critical Examination of the Theories of Itten and Küppers), *Themenheft 3 des BDK-NRW*, Düsseldorf.
5. Albrecht HJ (2015), Zur Problematik der Farbkontraste (On the problem of colour contrasts), *Vision Farbe : Adolf Hölzel und die Moderne (Vision Colour : Adolf Hölzel and Modernism)*, Wagner C and Leistner G (eds.), 220-222, München: Wilhelm Fink.
6. Grässli W (2001), Itten’s colour theory and its effect in Switzerland, *5. Dresdner Farbenforum. Bd. 5. Symposium Schnittstelle Farbe*, Eckhard B (hrsg.), 50-58. Dresden: Technische Universität.
7. Bendin E (1999/2000), Hölzel, Itten und wie weiter? Zur Klassifikation der Farbkontraste (Hölzel, Itten and what next? On the classification of colour contrasts), *Die Farbe*, **45** (4-6), 119-138.
8. Csillag P (2022), The visual communication impacts of Itten’s color contrasts investigated and empirically tested as basic principles for use in art and design, *Color Research and Application*, **47** (4), 841-854.
9. Schwarz A (2015), Farbkontrastlehren und ihre Genese (Colour contrast doctrines and their genesis), *Vision Farbe: Adolf Hölzel und die Moderne (Vision Farbe : Adolf Hölzel und die Moderne (Vision Colour : Adolf Hölzel and Modernism)*, Wagner C and Gerhard Leistner G (eds.), 195-218, München: Wilhelm Fink.
10. Field G (1835), *Chromatography; or, a Treatise on Colours and Pigments, and their Powers in Painting*, London: Charles Tilt, Fleet Street. [https://archive.org/details/gri\\_c00033125008687523/page/n5/mode/2up](https://archive.org/details/gri_c00033125008687523/page/n5/mode/2up) – last accessed 21 July 2022]

11. Chevreul M (1839), *De La Loi du Contraste Simultané des Couleurs (On the Law of Simultaneous Colour Contrast)*, Paris: Chez Pitois-Levrault et Ce, rue de la Harpe, no. 81.
12. Schwarz A (1999), *Die Lehren von der Farbenharmonie (Colour Harmony Theories)*, 190 ff, Gottingen: Hansen-Schmidt.
13. Barnard G (1855), *The Theory and Practice of Landscape Painting in Water Colours*, London: Wm. S. Orr and Co., Amen Corner, Paternoster Row.
14. Hölzel A (1919), Keynote lecture on his methodical practice, *Erster Deutscher Farbentag* (Stuttgart, 9 September 1919), 11, Berlin: Deutscher Werkbund.
15. Hölzel A (1904), *Educational letter to Bettina Feistel-Rohmeder, 4. March 1904*, quoted in [16].
16. Röhke U (2013), Die Farbe ist das Complicierteste... Hölzel's Farbenlehre in the context of his art teaching, *Kunstgeschichte Open Peer Reviewed Journal*, 1-25. [<https://www.kunstgeschichte-ejournal.net/312/> – last accessed 25 July 2022]
17. van Biema C and Hölzel A (1930), *Farben und Formen als lebendige Kräfte (Colours and shapes as living forces)*, Jena: E. Diederichs.
18. von Goethe JW (1810), *Farbenlehre*, Eastlake CL trans. as the *Theory of Colours*. [[https://books.google.hu/books?id=qDIHAAAQAAJ&printsec=frontcover&redir\\_esc=y#v=onepage&q&f=false](https://books.google.hu/books?id=qDIHAAAQAAJ&printsec=frontcover&redir_esc=y#v=onepage&q&f=false) – last accessed 29 July 2022]
19. Burwick F (1986), *The Damnation of Newton: Goethe's Color Theory and Romantic Perception*, 15-16, Berlin – New-York: Walter de Gruyter.
20. Schopenhauer A (1854), *Über das Sehn und die Farben (About Vision and Colours)*. 2nd improved and enlarged edition, 34, Leipzig: Verlag Johann Friedrich Hartknoch. (N.B. Although Schopenhauer had already discussed these ratios in the first (1816) edition of his book, the schematic figure was only included in the second edition).
21. Schreiber G (1868), *Das technische Zeichnen: für Architekten, Techniker, Mechaniker und Bauhandwerker, insbesondere für Bau- und Gewerbeschulen - Die Farbenlehre (Technical drawing: for architects, technicians, mechanics and building tradesmen, especially for building and trade schools. - The colour theory)*, Volume 3, Leipzig: Otto Spamer. [[https://books.google.com/books/about/Das\\_technische\\_Zeichnen.html?id=96A5AAAaAAJ&redir\\_esc=y](https://books.google.com/books/about/Das_technische_Zeichnen.html?id=96A5AAAaAAJ&redir_esc=y) – last accessed 18 September 2022]
22. Badura-Triska E (ed.), *Johannes Itten Tagebücher (Diaries) Stuttgart 1913-1916*, 59, Wien: Löcker Verlag (1990) Band II, (Stuttgart, between 20. October 1913 and 28. July 1914).
23. Poling CV Jr. (1973), *Color theories of the Bauhaus artists*, PhD Thesis, Columbia University.
24. Johannes I (1965), The foundation course at the Bauhaus, Gyorgy Kepes, ed. *Education of Vision*, 105, New York: George Braziller.
25. Düring H (1996), *Farbe am Bauhaus. Synthese und Synästhesie (Colour at the Bauhaus. Synthesis and Synaesthesia)*. Berlin: Gebr. Mann Verlag.
26. Itten J (1963), *Mein Vorkurs am Bauhaus. Gestaltungs- und Formenlehre (My Preliminary Course at the Bauhaus. Design and form theory)*, Ravensburg: Otto Maier Verlag.
27. Streit E (2015), *Die Itten-Schule Berlin. Geschichte und Dokumente einer privaten Kunstschule neben dem Bauhaus (The Itten School Berlin. History and documents of a private art school beside the Bauhaus)*, Berlin: Gebr. Mann Verlag.
28. Itten J (1930 / 1962), *Tagebuch. Beiträge zu einem Kontrapunkt der bildenden Kunst (Diary. Contributions to a Counterpoint in the Visual Arts)*, Berlin / Zürich: Johannes Itten.
29. Itten J (1940), *Johannes Itten: Kurs über Farbenlehre (Colour Theory Course) in Wattwil*, Zentralbibliothek Zürich, Spezialsammlungen. [<https://www.e-manuscripta.ch/zuzcmi/doi/10.7891/e-manuscripta-123172> – last accessed 8 August 2022]
30. Itten J (1940), *Johannes Itten: Kurs über Farbenlehre (Colour Theory Course). Beilagen (Supplements)*, Zentralbibliothek Zürich, Spezialsammlungen. [<https://www.e-manuscripta.ch/zuzcmi/doi/10.7891/e-manuscripta-123171> – last accessed 8 August 2022]

31. Wagner C (2003), Mythos "Stunde Null". Zu Itten-Rezeption in der Kunst nach 1945 (Myth of "Zero Hour". On Itten's reception in art after 1945), *Johannes Itten und die Moderne (Johannes Itten and Modernism)*, Wagner C and Wagner C (eds.), 227: Note 29, Lichtenstern: Ostfildern-Ruit, Hatje Cantz.
32. Itten J (1950's), Manuskripte zur Farbenlehre. Ordner IV. Zentralbibliothek Zürich, Spezialsammlungen (Manuscripts on the Theory of Colours. Folder IV. Zurich Central Library, Special Collections). 174 and 214. [Unpublished manuscript] [<https://www.e-manuscripta.ch/zuzcmi/doi/10.7891/e-manuscripta-135316> – last accessed 13 August 2022]
33. Berns RS (2019), *Billmeyer and Saltzman's Principles of Color Technology*, Fourth Edition, 38-39, Hoboken, NJ: John Wiley & Sons Inc.
34. Itten J (1961), *Kunst der Farbe*, Ravensburg: Otto Maier Verlag.
35. Itten J (1961), *The Art of Color*, Ravensburg: Otto Maier Verlag.
36. Briggs DJC (2023), Glossary. [<http://www.huevaluechroma.com/121.php> – last accessed 11 April 2023].
37. Berns RS (2014), Extending CIELAB: Vividness,  $V_{ab}^*$ , depth,  $D_{ab}^*$ , and clarity,  $T_{ab}^*$ , *Color Research and Application*, **39** (4), 322-330.