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*Colour as an element ordering the common space
in educational buildings.
On the example of Maria Dąbrowska Primary School No. 1
in Wrocław*

Introduction

Primary school is where a child first begins his or her education. It is here, after kindergarten, that a child's early childhood education begins. After kindergarten, most students must learn to function in a new community and in a new space (completely different from the one they have known before).

Currently there are not many new primary schools in Wrocław. Most of them are located in existing buildings. These objects do not have a consistent visual identity in the interiors. Each building is shaped separately and freely. Taking into account these conditions, in 2016 Wrocław Contemporary Museum, E. Geppert Academy of Fine Arts, Institute of Psychology at Wrocław University, Tekturowo – Katarzyna Bury and Wrocław Teacher Training Centre came up with a project for principals and teachers of primary schools, entitled: "Constructing cultural educational space" [1]. The aim of the project was to initiate the process of conscious shaping of aesthetic and cultural policy in Wrocław primary schools, as well as to draw attention to the need to redefine the space for creative and imaginative work with children.

This article presents a key part of the idea of transforming the common space in school facilities using selected forms of artistic expression such as colour. For this purpose, Maria Dąbrowska Primary School No. 1 in Wrocław was chosen. However, the developed design of changing the colours has not been implemented so far.

State of research

The results of a study conducted by researchers from University of Salford published in 2015 presented what factors affect the perception of space and thus the behaviour of a student [2]. They took primary school students under observation. They studied not only the impact of the school environment on students' behaviour but also on their learning ability and quality of education. After the research, two types of students were selected: those associated with the school space (mega-space), and those associated with the classroom (micro-space).

The same researchers also selected factors influencing the perception of space. They divided them into three groups: natural, such as light, temperature, air quality; subjective: sense of ownership and flexibility of space; stimulating: complexity of solutions, colour. Figure 1 shows the extent to which they affect students. It shows that the most important are natural conditions, and the perception of space is especially influenced by natural light (in 21%). Colour turned out to be the most stimulating factor for the student [2, pp. 8–15]. Most of these factors can be controlled through proper space design. It would seem that regardless of what colour and in what proportions it is used in the space of a school or class, it will have a beneficial effect on us in the same way. The first documented studies on the influence of colour on human behaviour appeared in the 1840s [3], but they did not concern primary school students directly. This topic was also dealt with by Professor Andrew J. Elliot from the University of Rochester, who in his publications deals with the subject of colour and its influence on human behaviour. In one of the works entitled *Historically based review of empirical work on*

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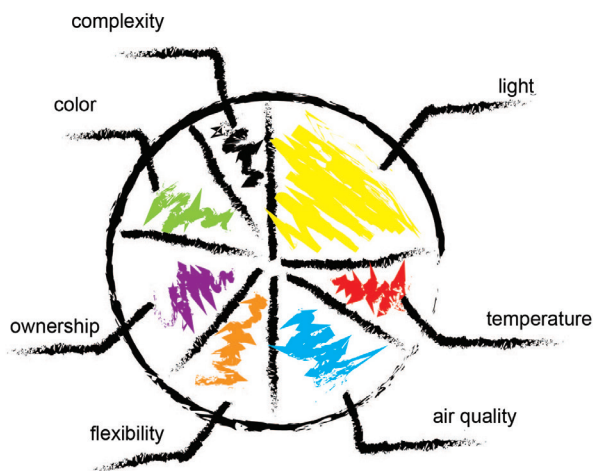


Fig. 1. Graph showing the influence of factors on student behaviour (elaborated by E. Netczuk-Pol based on [1, p. 15])

Il. 1. Wykres przedstawiający wpływ czynników na zachowanie ucznia (oprac. E. Netczuk-Pol na podstawie [1, s. 15])

color and psychological functioning: content, methods, and recommendations for future research [4] he also analysed historical achievements in this field. It is also worth mentioning the book *The beginner's guide to color psychology*, which comprehensively describes the influence of colour on human behaviour [5], and the publication *Psychological response to color: A critical review* [6] presenting psychological reactions to colour in a cultural context. Detailed research on individual colours was also carried out. It is worth mentioning the publication *Blue or red? Exploring the effect of color on cognitive task performances* [7]. In Poland, no detailed rules for the use of colour in individual school rooms have been published so far. Another essential factor that affects the perception of colour is natural light, since depending on its intensity, a space can be perceived in different ways. Natural light is best for the well-being of students and teachers. It should be provided for as long as possible in the school rooms. This can be achieved through large enough glass windows that also allow direct contact with nature and a suitable location in relation to the directions of the world. If it is difficult to locate them conveniently, hence special blinds or other devices for shading or shadowing should be used to allow sufficient sunlight into the interior [2, pp. 18, 19]. Another factor is flexibility in the design of the space. It can be used in both mega-spaces (common areas such as corridors, common room, cafeteria, etc.) and micro-spaces (classrooms) [2, pp. 28, 29]. In defining the boundaries of the space, colour can be used as an element that determines the area, such as a relaxation or study zone [8].

Colour as a phenomenon

Human perception of colour is a phenomenon that combines two opposing disciplines – science and art. Depending on which discipline we use to describe it, we will have a different point of view and reference. It was not until the 19th century that an attempt was made to organize

the phenomenon of colour perception in a scientific way. Among contemporary art historians dealing with colour, we should mention John Gage and his work *Colour and Culture: Practice and Meaning from Antiquity to Abstraction* [9]. He describes the meaning of colour, colour theories and the way it was perceived in different periods and cultures as well as in different fields of art. The knowledge of colour until the 19th century was applied in an intuitive way based on the experiences of past epochs and artists. The colour theory is interdisciplinary – it defines the phenomena of seeing colours on the ground of many sciences like physics (optics), chemistry, biology and psychology, but also on the ground of art, experiences and theories of many artists, painters, as well as many others. Colour can be defined in various ways as a phenomenon that is scientific and physical (wavelength and frequency of vibrations), psychological (dominant wavelength, purity, photometric quantity) and artistic, which is the most subjective of all because it depends on the viewer, his cognitive abilities, biological conditions, as well as his own subjective sensual and extrasensory perception, up to and including the phenomenon of synesthesia [10, pp. 35–40]. The feeling of colour and its perception depends on the perception of the world which is the result not only of visual experience but also of cultural experience, knowledge, but above all of individual sensitivity. This phenomenon is uncountable and difficult to examine objectively [11]. We can talk about colours in a subjective way, but also use the observation of their influence on our mood as a more objective tool of analysis. There is a cultural norm that warm colours are psychologically “active” and cool colours are “neutral”, while bright colours are “light” and dark colours are “heavy” and depressing [12, pp. 221–227]. In order to assign a colour in space we must consider it as a surface colour. It is the colour that appears on the surface of an object, constant and unchangeable, but its reception depends on many factors such as lighting, the background on which it appears and the texture of the surface [13].

Meaning of colour

All colours interact. The first attempts to create a colour wheel were made at the beginning of the 17th century by Aron Sigfrid Forsius. The most perfect scale is considered to be created in 1704 by Isaac Newton, which he placed in his work *Opticks* [14] (Fig. 2). It shows the basic colours that will be used to further analyse the influence of colour on the student's behaviour (Fig. 3).

In the discussed project for analysis the influence of colour on student behaviour and the space in which the selected colours could be located, colours defined as chromatic primary and complementary were used, such as red, orange, yellow, green, blue, indigo, purple, and achromatic colours – grey, black, and white.

Red

It is the first colour that appears in the language of colours after black and white. It is the colour identified with fire, blood and also love. It is the colour full of emotions.

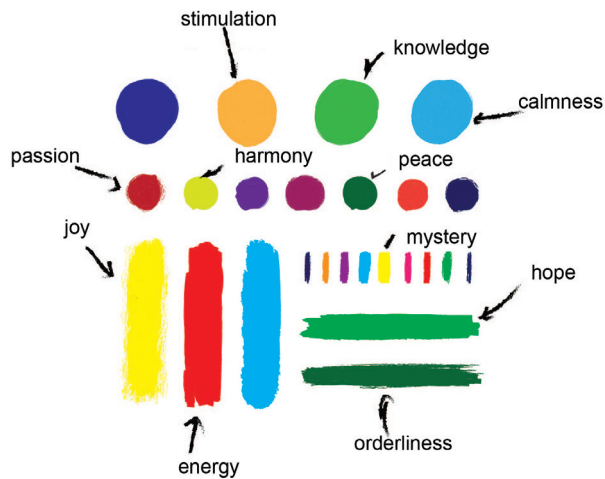


Fig. 2. Colour wheel based on Newton's dial (elaborated by E. Netczuk-Pol based on [15])

Il. 2. Koło barw na podstawie tarczy Isaaca Newtona (oprac. E. Netczuk-Pol na podstawie [15])

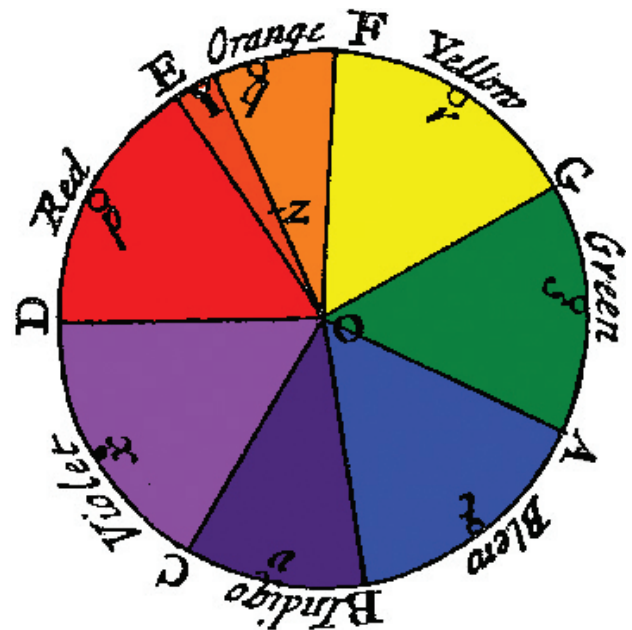


Fig. 3. Colour and its meaning (elaborated by E. Netczuk-Pol based on [10], [11])

Il. 3. Kolor i jego znaczenie (oprac. E. Netczuk-Pol na podstawie [10], [11])

In Roman mythology, it is considered to be the colour of aggression, associated with the masculinity of the god Mars and the red planet. Aristotle places it just after the colour of light. Red combined with gold enhances the feeling of joy [16, pp. 47, 48].

Red is the colour associated with strong behaviours such as excitement, stimulation, emotionality, passion, energy, agitation, but it also has negative tones such as aggression and intensity. It is the dominant colour over all colours, optically it appears closer than the others [17, pp. 38–40].

This colour, due to its energizing nature, should be used in outdoor spaces, gardens, where the stimulation of children is not a problem, quite the opposite [16, p. 130].

Orange

It is a combination of two primary colours, red and yellow, also in terms of their emotional significance. It is a positive colour in which yellow loses its beneficial brightness taking away from red its positive passion. It is the colour of good destiny. It is associated with the ripe fruit of late summer and the colours of autumn [16, pp. 50, 51].

Orange is the colour of balance between the vibrant red and the intellectualizing yellow. It stimulates the nerves and supports coping with emotions. Its shades evoke excitement, stimulation, joy, it causes a positive attitude, and energizes in a more subdued way in contrast to red [17, p. 40].

Due to its positive emotional colouring it can be used in workplaces, workshops, laboratories, cafeterias and gymnasiums [17, p. 130].

Yellow

It is the most joyful of all colours. It is associated with the gold colour and has a similar meaning to red, but is not as exciting as red. Yellow is the symbol of enlightenment. It is the brightest of all colours [16, p. 48].

Yellow is the colour of the mind. It is the colour of the sun, which stimulates and allows us to develop our mental abilities. Yellow stimulates our nervous system and allows it to relax and make it easier to solve problems. It also deflects negative emotions. Its emotional tone is positive and evokes joy, encourages and inspires [17, pp. 40–43].

It should be used in the entrance area, where it will initially awaken positive energy and inspire further creative work, and in verandas. It can also be used in classrooms, staff rooms and art and music rooms [16, p. 130].

Green

This colour combines the contemplative meaning of blue with the sense of happiness of yellow giving green symbolizing hope. It is the colour of hope, promise, expectation of happiness and good news. Green is bright, warm, it is a symbol of new life and nature awakening every spring. The secondary colour created from mixing green orange and purple is considered the most positive of all [16, pp. 49, 50].

Psychologically green is a colour that allows you to calm down, cut off from stimuli, it is also the most calming colour for our eyesight, affects our circulatory system by lowering its pressure. It is a symbol of nature, the human living environment. It is also the colour of balance in the colour wheel located opposite the red and purple. It gives a sense of equality between the material and spiritual worlds. Green strongly determines the feeling of harmony and peace in space. However, not all of its shades are so positive for our body. In the case of shades with low light saturation and cold colour temperature, they evoke completely opposite impressions. They are associated with

decay, poison, and therefore anger and jealousy. It is a colour of opposites and the right spectrum of colours must be used to achieve a beneficial effect [17, pp. 49, 50].

Taking into account its calming character, it should be used in rooms intended for gatherings, in corridors and staircases and wherever there are large concentrations of people [16, p. 130].

Blue

It is a symbol of the boundlessness of the sky and the depths of the ocean. Blue is identified with depth, mysticism, femininity, it is the colour of wisdom, peace and contemplation. Blue is a symbol of purity. It is positioned opposite yellow in the colour wheel, and therefore resembles black when there is little or no light [16, p. 49].

Blue is the opposite colour to red, it is considered the colour of water, which in its hue is relaxing and lowers blood pressure levels. Currently, this colour is triumphant precisely because of its nature. Blue evokes a sense of comfort, peace, soothes our nerves [17, pp. 42–44].

Suitable locations for blue are the library, the computer lab and, like in the case of yellow, classrooms, staff rooms, music and art rooms [16, p. 130].

Indigo

It is a shade of blue, identified in artistic and ideological life as a marker of beauty. It is an almost ideal colour, evoking a sense of fulfilment. It is also a colour that can heal because of its ethereal nature [17, pp. 44, 45].

Purple

It combines love symbolised by red with wisdom represented by blue to create a royal violet representing the two most desirable character traits of wisdom and concern for others. Purple is a blend of two opposing colours, where blue gives us harmony and red gives us energy, providing blue with an even more mystical depth. It also has a negative undertone because it has strong connotations with black – it is the next colour after it [16, p. 51], [17, p. 45]. In some cultures it is a symbol of mourning.

Grey

It is formed from the combination of two opposite colours – white and black, it is exactly between them. It is an achromatic colour which is completely neutral and has no meaning. It has a positive tint because of its colour balance [17, p. 52].

Black

This colour starts the colour scale. It is considered a negative colour but in combination with other colours its meaning depends on the context and can have a positive aspect. Generally black represents chaos, darkness and at the same time pure potential. In some cases it gives things an exclusive character. In a school the only place where

black can be used as a dominant colour is the theatre room [16, p. 45].

White

It is the brightest of all colours and draws its radiance from the sun, which symbolizes mystical illumination. White because of its close proximity to yellow draws its joyful character from it. It is a symbol of purity [16, p. 45].

White is the colour that provides the most reflection of the visible spectrum. The perception of this colour is variable, it depends on the context and colours in its vicinity. White used in rooms gives a sense of neutrality, purity, sterility. It is also a background for other decorations [17, pp. 46–48].

Principles of colour composition

When designing the colour scheme of the school, it is necessary to pay attention to several important aspects. It is necessary to combine the architectural idea with the colour proposal of the interior. They should harmonize with each other, not compete, according to the principle that [...] *different colours should be mixed in such a way that the painted object, viewed from a distance, gives the impression of balance* [18, p. 26]. At the same time, they should reflect the function of the space. Colour should be used to aid the development of form and to help distinguish between objects or their parts or functions [18, p. 25]. There are several factors that influence the perception of a colour effect:

- size and proportion of the room – spaces that have a light coloured ceiling appear taller,
- rhythm, patterns, texture and structure – the use of colour when using a strong pattern can neutralise its rhythm,
- size and location of the coloured areas – warm colours on walls with a cold background will have a positive effect. If the area of the wall in relation to the rest is significantly smaller, then we should intensify the colour to get the same effect as on a large area,
- orientation in relation to daylight – the perception of colour depends on the location of windows in relation to the directions of the world and the availability of daylight,
- surface texture – the same colours will be perceived differently on different textures,
- dominant colour – introduce dominant colours to harmonise the space [18, pp. 59–62],
- the use of colour is intended to support the effect of light and shadow,
- primary colours should be used on the higher parts of the object, while secondary and tertiary colours should be used on the lower parts,
- colour planes should never overlap [18, pp. 25, 26].

Knowing the basic principles of composition and the importance of colour and its effect on us, we can easily choose the appropriate colour palette for a given school, taking into account the functions to be found in the space. In addition to the principles of composition and appropriate selection of colours, cultural considerations should also be taken into account when designing a colour scheme.

The use of colours in school interiors. Case study

In Poland we have become accustomed to the lack of colour in the school space or its small amount, which completely does not correspond to the function in a given space. Most of the currently existing schools built before the 1990s do not take into account colour as a factor influencing student behaviour. At that time, knowledge of this subject was scarce, not easily accessible, and if it was, it was a difficult subject to push, and the effects of colour were rather the result of many subjective factors, sometimes only intuitive awareness of the creation of space favoured the appropriate choice of colours. Recently attention has been drawn to this issue; however, it is still done practically without deeper analysis, only on the basis of a certain sensitivity and intuition of the designers. When designing new school spaces it is easy to introduce the correct colours for the relevant spaces, all that needs to be done is to carry out a detailed study of the function in the space and the appropriate choice of colour for it, taking into account the basic principles of composition in the design phase.

There are many schools around the world that are incorporating the principles of colour composition, although there are still far too few of them. Worth mentioning here are some well-known examples such as Cassata Primary School (Bengaluru, India), Anglo-Colombian Primary School (Bogotá, Colombia), Kirkmichael Primary School (Ayrshire House, UK), Vittra School Södermalm (Södermalm, Sweden), Family Box (Beijing, China), Saint-Jean's Schools (Strasbourg, France), Alto de Pinheiros School (Alto de Pinheiros, São Paulo, Brazil), Kathleen Grimm School (Staten Island, New York, USA), St. Joseph's Primary School (Blantyre, South Lanarkshire, Scotland) and The Sheikh Zayed Academy (Abu Dhabi, Emirates). Appropriately selected colours influence the student's behaviour by stimulating them in the way the designer intended, in places requiring silence we use harmonising colours, and in places requiring physical activity – stimulating colours. An appropriately chosen scheme helps the pupils to find themselves in the space and behave appropriately through chromotherapy.

A more difficult task is faced by designers working on projects for the renovation of existing historic buildings. What can serve here as an example is the project of renovation of the oldest primary school in Wrocław (Maria Dąbrowska Primary School No. 1). It is a characteristic 19th-century building with features of northern German neo-Gothic with a brick face in an extremely decorative coat under the influence of Art Nouveau. It was constructed in 1899–1900 as the Johann Heinrich Pestalozzi People's School in the People's School Complex at today's 78–80 Nowowiejska Street, according to a design by building advisor Richard Plüddemann and building inspector Hermann Froböse [20], [21]. The building is protected under the provisions of the local plan and in the provincial and commune register of historic monuments [22].

Currently, interiors are completely free of colour, which is the result of random, individual decisions made in iso-



Fig. 4. Photo of the school's corridor and staircase in 1901 with characteristic monochrome panelling and subtle borders with a floral motif (source: [19])

Il. 4. Zdjęcie korytarza i klatki schodowej szkoły w 1901 r. z charakterystycznymi monochromatycznymi lamperiami i subtelnymi bordiurami z motywem florystycznym (źródło: [19])

lation from the function of the rooms and the overall analysis of the object.

The aim of this project was to carry out a restoration of the interior, taking into account colour as a stimulating element for the student. For this purpose a detailed analysis of available scientific publications in this field was carried out. In addition, activities related to the conservation renovation are foreseen, i.e., it was initially planned to carry out stratigraphic research into the historical colour scheme of the building, and then to confront the results with the proposed colour scheme. It assumed the unification of colours of walls, light-coloured woodwork and introduction of small architectural elements of varied colours (yellow, green and blue) corresponding to particular storeys. The proposed range of colours was based on available research and a detailed analysis of the existing primary schools where colour plays a large role in shaping the space. Three colours have been selected: yellow, green and blue, which correspond to each floor, orange was used as a complementary colour, which should be used in the canteen room.

The original paint work is not fully known, however, the preserved iconography (Fig. 4) clearly shows that all corridor walls were painted with oil paints in the form of dado up to a height of approximately 1.3 m in light pastel shades. The upper part of the corridor walls and the vaults were painted white. The dado were separated from the upper, white part of the walls by a border composed of a wide, light-coloured stripe framed by two narrow, dark-coloured stripes with a floral pattern in the middle.

After 1945, monochromatic dados made with glue and oil paints on both plaster and brick were introduced, which were common at the time. The colour scheme varied from beiges to celadons and greens, in keeping with the then common colour scheme of oil paints for use in school in-



Fig. 6. Maria Dąbrowska Primary School No. 1 in Wrocław – 1st floor: a) current state, b) planned changes (elaborated and photo by E. Netczuk-Pol, 2017)

II. 6. Wrocław, Szkoła Podstawowa nr 1 im. Marii Dąbrowskiej – 1. piętro: a) stan obecny, b) projektowane zmiany (oprac. i fot. E. Netczuk-Pol, 2017)

their caretakers. It allows them to dismiss negative emotions. At the same time it is not as intense as the red colour.

2nd–3rd floor

On the following floors there are classrooms for children from grades 4–8. On the 2nd floor there are classrooms for Polish language, mathematics, science, history and sanitary facilities. For this floor the colour green (RAL 6018) was chosen, which is the colour allowing to calm down and concentrate, giving the feeling of harmony (Fig. 7). On the top floor there are rooms for German, English, art and music classes, a computer lab, speech therapist, auditorium, psychological-pedagogical consulting room and sanitary facilities. The colour which best suits this functional arrangement is blue (Fig. 8). Similarly to yellow, it is relaxing, evokes the feeling of comfort and at the same time it is an inspiring colour.

The staircase is an important element connecting the floors with each other. On the landing there are modern cast

iron radiators which cause spatial dissonance. In order to reduce this feeling, covers have been designed in the form of cuboids made of perforated composite panels in the colour corresponding to the particular storey they lead to (Fig. 9). This is another element serving the purpose of visual identification, which is to facilitate moving around the school.

Conclusions

Colour is very important in our lives. Often we do not even realize the role it plays in our daily perception of the world and the effect it has on our well-being. School education is a very important event in the life of a child, especially in primary education. Here in particular, it is important to facilitate a good start for children in a new space by designing harmonious interiors adapted to the development of children, rather than hindering their entry into a new, supra-primary community, through disharmonious school spaces that make integration, learning and various activities difficult, as it is often the case in Polish

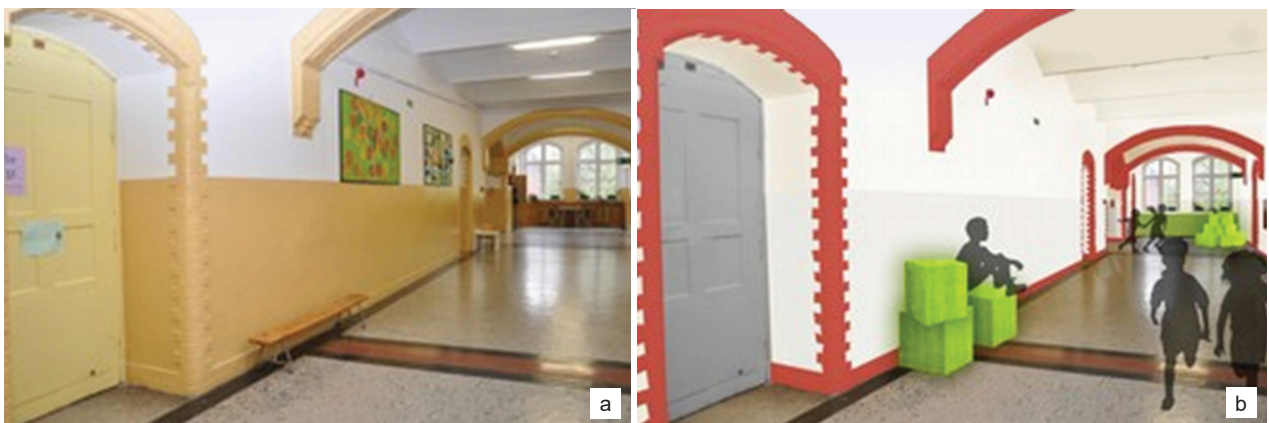


Fig. 7. Maria Dąbrowska Primary School No. 1 in Wrocław – 2nd floor: a) current state, b) planned changes (elaborated and photo by E. Netczuk-Pol, 2017)

II. 7. Wrocław, Szkoła Podstawowa nr 1 im. Marii Dąbrowskiej – 2. piętro: a) stan obecny, b) projektowane zmiany (oprac. i fot. E. Netczuk-Pol, 2017)

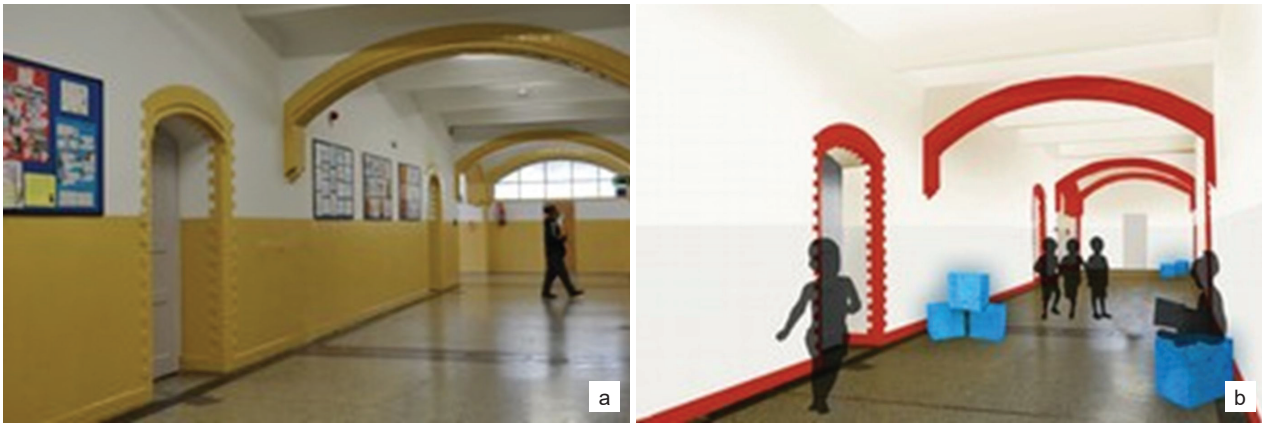


Fig. 8. Maria Dąbrowska Primary School No. 1 in Wrocław – 3rd floor: a) current state, b) planned changes (elaborated and photo by E. Netczuk-Pol, 2017)

II. 8. Wrocław, Szkoła Podstawowa nr 1 im. Marii Dąbrowskiej – 3. piętro: a) stan obecny, b) projektowane zmiany (oprac. i fot. E. Netczuk-Pol, 2017)



Fig. 9. Maria Dąbrowska Primary School No. 1 in Wrocław – landing between the 2nd and 3rd floors: a) current state, b) planned changes (elaborated and photo by E. Netczuk-Pol, 2017)

II. 9. Wrocław, Szkoła Podstawowa nr 1 im. Marii Dąbrowskiej – spocznik między 2. a 3. piętrem: a) stan obecny, b) projektowane zmiany (oprac. i fot. E. Netczuk-Pol, 2017)

schools. The project “Constructing cultural educational space” was a starting point for further considerations on this subject. During meetings with teachers and headmasters, a discussion was opened on the subject of colour in the school space. They pointed out that it is possible, at a low cost, to create a harmonious space in which it will be easier to move around, and at the same time it will have a positive impact on student behaviour. Maria Dąbrowska Primary School in Wrocław can become an example of introducing colour to a historic interior, taking into account its influence on the behaviour of the student and on the consistency of visual identification. However, due to high costs, the project is waiting for implementation.

Creating a template and a catalogue of good practices for designers seems to be a good and necessary postulate.

Of course, individual needs and conditions should be taken into account because it is impossible to create a universal template for all schools. However, knowing the impact of colour on the psyche of children, we can shape their behaviour through the appropriate selection of colours. As shown by a study conducted by researchers from Stanford University, a well-designed educational space can increase the efficiency of students, even by 16%. For this reason alone, it is worth creating a space that is friendly to students and all users of the facility. Colour schemes can also be transferred to other areas of architecture, not only to educational space, but also to public buildings.

*Translated by
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Abstract

*Colour as an element ordering the common space in educational objects.
On the example of Maria Dąbrowska Primary School No. 1 in Wrocław*

The article discusses general issues related to creating the space of educational objects in terms of colour. The perception of school space is influenced by many factors such as light, temperature, air quality, space flexibility, sense of belonging, space complexity and colour. The latter plays an important role in the perception of rooms and influences human behaviour, because apart from sound and smell, it is one of the most important stimuli perceived by our brain. Nevertheless, most of the existing schools in Poland which were built up to 1990 do not take into account colour as a factor influencing student behaviour. This issue has only recently received attention. This article presents a case study of Maria's Dąbrowska Primary School No. 1 in Wrocław. For the needs of this school, as part of the "Constructing Cultural Educational Space" program organized by Wrocław Contemporary Museum, a project was prepared to introduce colour into the interior while maintaining the historical character and substance of the object and taking into account the influence of colour on the child's psyche. The presented interior rearrangement project may become the beginning of further research on the issue of colour and its role in shaping educational spaces.

Key words: colour, primary school, composition

Streszczenie

*Kolor jako element porządkujący przestrzeń wspólną w obiektach edukacyjnych.
Na przykładzie Szkoły Podstawowej nr 1 im. Marii Dąbrowskiej we Wrocławiu*

W artykule zostały omówione ogólne zagadnienia dotyczące kreowania przestrzeni obiektów edukacyjnych pod względem kolorystycznym. Na odbiór przestrzeni szkoły wpływa wiele czynników takich jak światło, temperatura, jakość powietrza, elastyczność przestrzeni, poczucie przynależności, kompleksowość miejsca i kolor. Ten ostatni odgrywa istotną rolę w odbiorze pomieszczeń i wpływa na zachowania człowieka, ponieważ jest oprócz dźwięku i zapachu jednym z ważniejszych bodźców odbieranych przez nasz mózg. Mimo to większość z obecnie istniejących we Polsce szkół wybudowanych do 1990 r. nie uwzględnia koloru jako czynnika wpływającego na zachowanie ucznia. Dopiero od niedawna zwraca się uwagę na tę kwestię. W niniejszym artykule przedstawiono studium przypadku Szkoły Podstawowej nr 1 im. Marii Dąbrowskiej we Wrocławiu. Na potrzeby tej właśnie szkoły w ramach programu „Konstruowanie Kulturalnej Przestrzeni Edukacyjnej” organizowanego przez wrocławskie Muzeum Współczesne przygotowano projekt wprowadzenia koloru do wnętrza z zachowaniem historycznego charakteru oraz zabytkowej substancji obiektu i przy uwzględnieniu wpływu koloru na psychikę dziecka. Zaprezentowany projekt przearanżowania wnętrza może stać się początkiem dalszych badań nad zagadnieniem koloru i jego roli w kształtowaniu przestrzeni edukacyjnych.

Słowa kluczowe: kolor, szkoła podstawowa, kompozycja

