

Practice-based research on color planning for educational facilities

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In this paper, two color plans for educational facilities are introduced and discussed. The first color plan was realized as part of a renovation of student dormitories and other facilities on campus at the University of Tsukuba. Accent colors were used in accordance with building shape and the same base colors were used for adjacent buildings. The second color plan was part of a reconstruction of facilities at the Tsuchiura Third Senior High School. Colors rarely used outdoors as accent colors were applied, enhancing the uniqueness. Each interior accent color was selected based on the image color of each special room. The resulting color schemes have been well-received by students.

Reprinted version published online: 26 January 2022

Original source: Proceedings of the 14th Congress of the International Colour Association (AIC2021)

Introduction

In this paper, the importance and effects of the color of architecture and environment of educational facilities will be discussed with case studies, which are two color plans for exteriors and interiors of educational buildings and facilities shown with images and figures.

Looking briefly at the history of color planning for buildings, color conditioning became popular after World War II, when function was emphasized [1], followed by demands for amenity and pleasantness [2]. These days, harmony and familiarity are becoming more important, while taking universal design into consideration. Our color planning basically follows these trends.

Color planning for renovation of student dormitories of University of Tsukuba

The first case study is a renovation of dormitories and other facilities on the campus of the University of Tsukuba, Japan. Accent colors are used according to building shapes and the same base colors are used for adjacent buildings.

Part of this color plan was previously introduced [3,4], but in this paper, the color planning process has been elaborated. Since around 2010, almost 40 years since the university opened, it has been renovating the aging dormitories one by one. The main purpose of the renovations has been to improve earthquake resistance, to repair the plumbing and other facilities, and to change building layouts to meet the changing lifestyles and requirements of the students. Exterior painting is also important for maintenance purposes, and the same colors were generally used when repainting, such as a uniform beige for the dormitories, which at best gave a calm, and at worst, a somber atmosphere. The vice president for student affairs at that time decided that the exterior colors should be changed to let others know that the building had been renovated. It became considered necessary to promote awareness of the renovation of the building and to change the uniform atmosphere.

The concepts of the color plan for the student dormitory were to create the following: “a student-like brightness”; “a warmth that makes them feel relieved to return to their dormitory”; “individuality that makes them feel the identity of their dorm building”; “harmony with the surrounding environment”; and “cohesion between adjacent dormitory buildings.”

The accent colors were carefully planned according to the particular shapes of the buildings. YR (yellowish) accent colors are actively used on convex surfaces (Figure 1 left), while other accent hues, such as PB (purple), are used sparingly in concave areas (Figure 1 right).



Figure 1: Exterior color planning for dormitories in the south part of the University of Tsukuba campus.

For the foreign student dormitories, as more vitality and change was considered necessary, vivid colors were used over large areas in the concave sections (Figure 2). Interior color planning was also conducted, in which the accent color was often used for one of the four walls (Figure 3).

Feedback from students included “I feel energized,” “I feel excited,” and “I am happy to be in a stylish dormitory,” which was as hoped for and expected.



Figure 2: Exterior color planning for foreign student dormitories in the north part of the University of Tsukuba campus.



Figure 3: Interior color planning for Japanese-foreign students shared rooms at the University of Tsukuba.

Color planning for reconstruction of the Tsuchiura Third Senior High School

The second color planning case study is a reconstruction of facilities at the Tsuchiura Third Senior High School, Ibaraki Prefecture, Japan. Colors that are typically not used for exteriors were used as accent colors, enhancing the originality. Each interior accent color was selected based on the image color of each special classroom.

Color planning in Japan tends to appear in the middle or at the end of the architectural design process, rather than at earlier stages. Fortunately, we could do color planning at the start of this project, and we thus decided on a basic policy of “creating an identity by creating an atmosphere that is different from other high schools, both in terms of the exterior and interior” based on architectural design philosophy. The ultimate goal was to “create a sense of attachment and pride in the school building”.

To realize the above, the following specific concepts were adopted: “create crisp and clear appearance”; “make best use of the characteristics of each special classroom”; “make the classroom layout easy to understand”; and “create a bright environment”.

For the exterior color scheme, the base color and sub-base color of the “Administration and Regular Classroom Building” and the “Special Classroom Building” were the same, and the accent colors were used separately. The accent colors for the south and north faces of the “Administration and Regular Classroom Building” are different. On the north side, 5G (green) was used as an accent color on both sides of the three-story vaulted entrance for students to create a gating effect (Figure 4). This color rarely appears in architecture, and its brightness and beauty make it stand out strongly from the white base, helping to create an identity.



Figure 4: Exterior colors for the north side of the “Administration and Regular Classroom Building,” the Tsuchiura Third Senior High School.

The interior colors of the “Special Classroom Building” are based on the following color scheme. First, theme colors associated with the subjects of the special classrooms were used as the accent colors for each room. In principle, the accent color was to be used only on the largest of the four walls of each room (Figures 5 and 6).

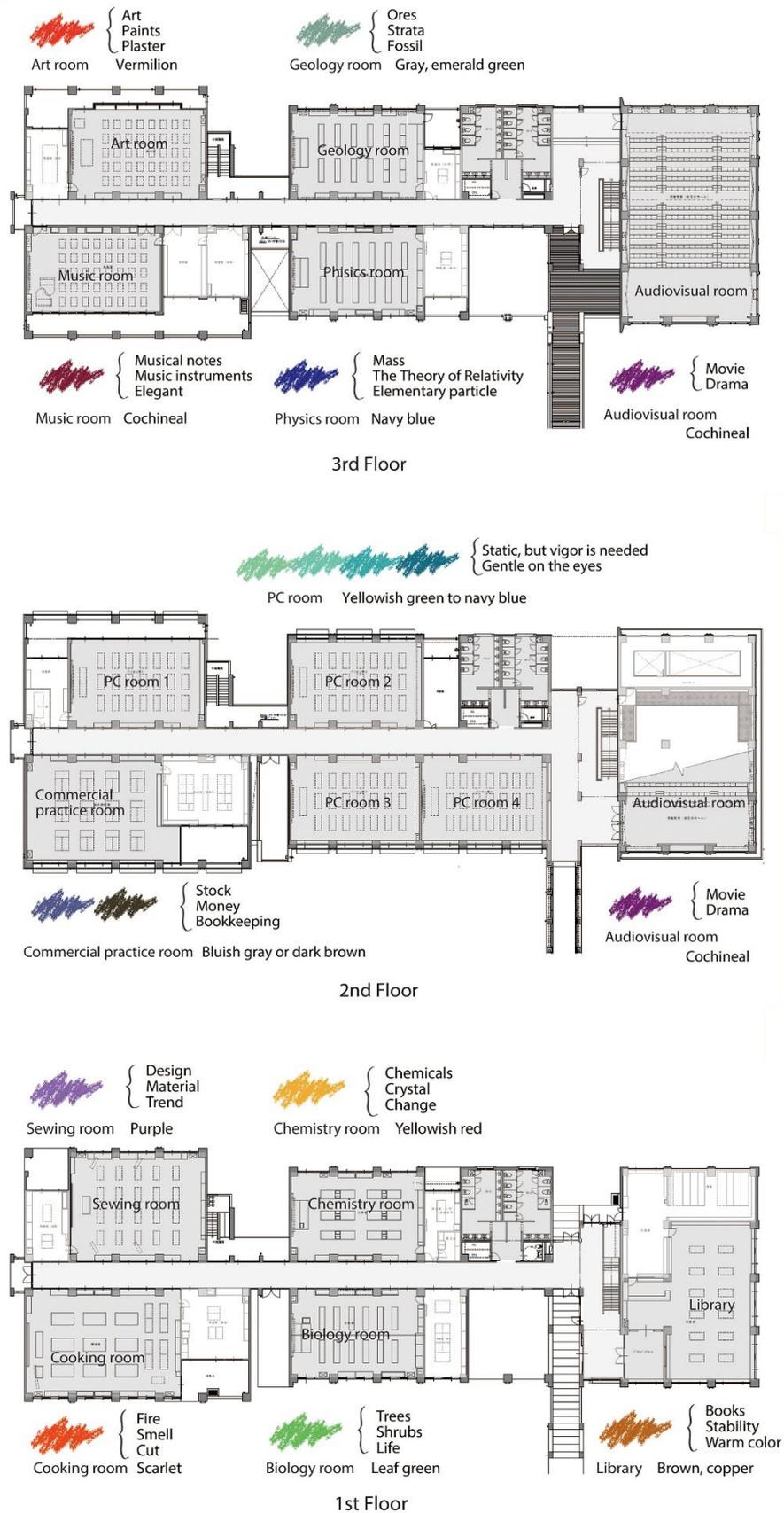


Figure 5: Image colors and image words of each special room of the Tsuchiura Third Senior High School for interior accent colors and signage.



Figure 6: Interior colors of cooking room, first floor of the Tsuchiura Third Senior High School.

However, as the library and audiovisual room are different from the special classrooms, different color schemes were used. The library is positioned as a key part of education, with a large collection of books, and we therefore tried to create a special space for it. The walls were almost entirely painted in red to match the color of the wood used for the bookshelves. The audiovisual room can accommodate all six classes of the same grade, also making it a special space. To make it effective for use of a projector, a low-light achromatic color, N4 (almost black), was used for the walls.

Following the construction, the high school users were pleased that a good space had been created. Compared to other prefectural high schools, there was almost no difference in the cost of the renovation work, but the quality of the space has been highly evaluated. There have been many visitors from other high schools, and the rate of applicants to this high school is said to have increased.

Conclusions

Two case studies of color planning for the renovation and reconstruction of 40-year-old educational facilities were discussed. It was shown that the color planning can give energy and brightness to the students and others.

There are many aging educational facilities in Japan and other countries. We hope that these case studies will serve as references for the renovation and reconstruction of these facilities. In addition, we believe that these examples can be used as a reference not only for educational facilities, but also for housing and apartments that are more than 40 years old, which can be found in many places in the world.¹

¹ Parts of this paper refer to our previously published papers [4-6].

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