

## **COLORS IN UNIVERSITY STUDY ENVIRONMENT: STUDENTS' DESIGN COMPETITION ANALYSIS**

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### **ABSTRACT**

The purpose of the research is to study the way students visualise their study environment. A students' design competition was held as part of a scientific-research project. The article analyses projects received during the competition and the tendencies they mark out concerning the role of colours and materials as an important means for visual differentiation of single-purpose functional zones in a multi-functional common space of a university study room. Projects are grouped based on the common features they share. Specifics of every group of features are compared with contemporary tendencies of using colours to optimize the working environment in study rooms.

**KEYWORDS:** colour design, colour scheme, architectural design, colour in architecture, university study room

### **INTRODUCTION**

The research is part of a scientific project about using colours to improve the working and socializing environment in a university study room.

In previous research, the authors reached the conclusion that traditional study rooms designed as single-function spaces are more actually hosting a variety of activities related both to the study process and to socialising. The places in a study room where these activities most often take place are preferred by the occupants to be visually separated.

Colour application is gaining even more attention contemporary way to distinguish different functional zones. Colours' optical qualities can visually alternate space's proportions and can contribute to light distribution and heat construction elements accumulation. Colours associations can support processes ongoing in different functional zones.

Colours' physiological and psychological effects on human perception can also manipulate thermal, light and acoustic comfort.

### **METHODOLOGY**

The student design competition was held as part of the research process. The participants were allowed to present colour designs for walls, floor, ceiling and furniture - only for one of these elements or in combinations according to the author's choice.

18 design solutions were presented (fig.1). They are analyzed in the present research and data is compared with conclusions and results from previous team studies.

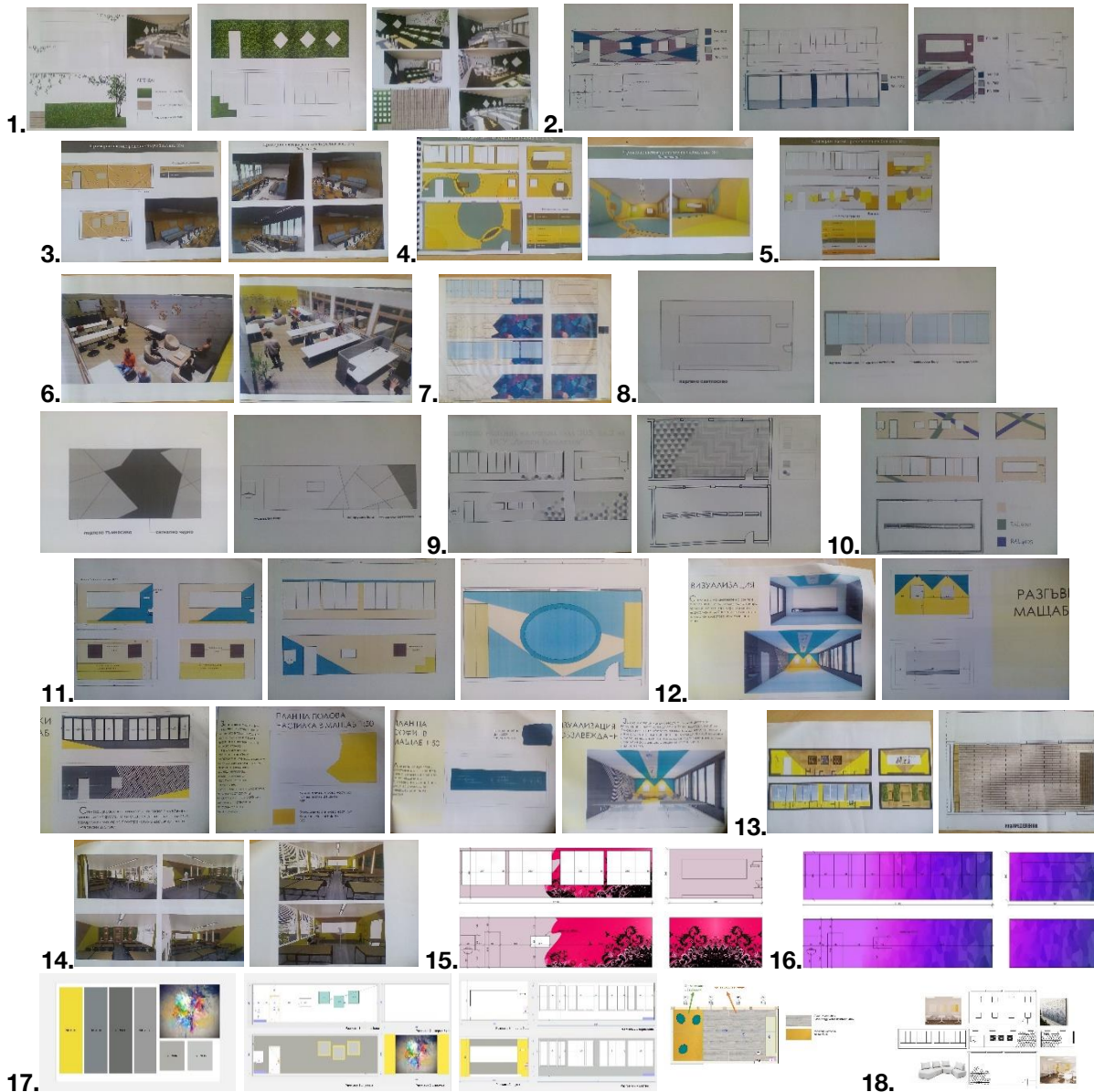


Figure 1: Student competition entries

## DESIGN BASICS

Communication technology development and special recent circumstances raise an ongoing discussion about the physical space necessary for the studying process. S. Bennett formulates basic arguments in favour of physical presence [1]:

“Some aspects of immersion learning are hard to achieve except in physical spaces. Learning is a remarkably social process. It occurs not as a result of a social framework that fosters learning, but rather as a response to teaching. The most valuable aspect of the universities in the learning communities they establish and nurture...

Some of the social dimensions of learning like learning opportunities that come with racial, ethnic, religious, and economic diversity cannot be fully realized or substituted for in virtual space...

The character of collaborative learning is likely to be different in physical and virtual spaces. In physical space, the sensory environment (say body language) is richer, and personal negotiations are more direct and not complicated by mediating technology...

Physical space is needed for the performance aspect of teaching and learning. Many lecturers, for instance, are superb performers in the classroom and depending on how students are involved in the class, the classroom also becomes a performance space for students”.

**M. González-Zamar, L. Jiménez, A. Ayala and E. Abad-Segura stated: “The university, as a social and cultural space, must adapt to the needs of the students. This circumstance requires a leap in quality in the face of society as an architectural, environmental and sustainable paradigm... In this context, learning spaces are not understood as a simple volumetric containers of activities, but their concept goes beyond a mere architectural object... HEIs have contributed to the development of knowledge societies or economies from different perspectives, such as politics and research, among others. In this same order, the link of the university classroom with the management of the socio-educational well-being of the student must be established according to the principles of the well-being theory, as one of the challenges to be met by the current university. The interest in the well-being and quality of life of students focuses on fully developing their capabilities and potentials.” [2]. In her study B. Genova reaches the overall conclusion about the need for creating social communication stimulating environment both in living and studying areas [3].**

**The contemporary study environment is expected to meet updated requirements and with the expectation, the necessity of new space organizing principles is raised. In order to achieve optimal studying conditions, a combination of both conventional and alternative approaches are to be considered. Colour application according to optical qualities and psycho-physiological effects on the inhabitants is one of the very innovative techniques for achieving the desired study conditions.**

**In previous studies, the authors had analyzed the specifics of university study room habitation [4]. “Permanent residents are students, 20 and more persons, average aged about 22 years...**

**The variety of activities is also diverse - lecturing, conducting exercises, independent working, socializing, recreating.”**

## **UNIVERSITY STUDY ROOM STUDENT DESIGN COMPETITION ANALYSIS**

**The competition's main requirement is the use of colours to design a more comfortable study environment. The students were allowed to include or exclude as many construction shell elements (walls, floor, ceiling) and furniture at their discretion. They were also allowed to achieve the desired colour combination through paint use or through material textures. No specific guidelines for functional zoning were given.**

**According to elements included in the design solution (construction shell elements and furniture), the competition entries can be grouped as follows:**

**Only 1 (5%) of the competition entries consider walls, floors and ceilings as design objects (il.1, №12). 9 (50%) entries include walls and floor as design objects (il.1, №1, 2, 4, 11, 12, 13, 17, 18).**

**All 18 entries use walls as the main means to express the design conception. 7 (39%) of them include all four walls (il.1, №1, 2, 7, 11, 13, 14, 16), 9 (50%) include only three walls (il.1, №4, 5, 6, 8, 9, 10, 12, 15, 17) and 2 (11%) include only two walls (il.1, №3, 18). No competition entry includes only one wall designed.**

**No competition entry uses only furniture as the main and single design conception expression means. Furniture is applied as an additional design element.**

**According to functional zoning, the competition entries can be grouped as follows:**

**5 of the competition entries (28%) treat the whole study room equally with no specific visual or special distinction of different functional zones (il.1, №2, 4, 5, 6, 16).**

**7 of the rest (39%) use only color elements to signify different zones (il.1, №7, 8, 10, 12, 15, 17) and 6 of the rest (33%) use materials and furniture (il.1, №1, 3, 11, 13, 14, 18).**

**5 of the competition entries (28%) positioned the informal functional zone along the short back wall (il.1, №1, 11, 13, 14, 18) and only 1 (5%) positioned it along the longer inner wall (il.1, №3).**

According to using colour vs. material textures, the competition entries can be grouped as follows:  
 5 of the competition entries (28%) apply materials and textures (il.1, №1, 3, 13, 14, 18), 3 (17%) of them prefer natural plants (il.1, №1, 13, 14), 1 (5%) prefers wood (il.1, №3) and 1 (5%) applies ceramic decoration (il.1, №18).  
 13 of the competition entries (72%) suggest colour paint in order to achieve the desired colour design.

## **RESULTS AND DISCUSSIONS**

In previous research, authors reach the conclusion that walls are the most noticeable elements of the room and hence the most appropriate for re-design. In addition colours of wall-covering materials provide the most diverse colour solution possibilities [7]. This conclusion is confirmed by the total majority of design entries that use walls as means for achieving the preferred colour design (100%). The diversity of the number of the walls suggests for the colour design can be explained by the fact that one of the long walls consists predominantly of window openings with heating radiators under them. One of the short walls contains the writing board and it is the second one that dropped out of most of the entry design solutions.

Although no specific instructions were given, 72% of the competitors suggest functional zoning, marking it with colour elements, materials, furniture or a combination of the previous. This also confirms another conclusion made by the authors [4] that contemporary university study rooms cannot be still considered mono-functional single spaces.

While colour competition entries' solutions vary in tones, shades, hues and colour combinations, proposed materials are categorically natural – wood, plants (specified as natural) and ceramics.

## **CONCLUSIONS AND RECOMMENDATIONS**

The contemporary university study room is preferred by its permanent inhabitants – the students – to be designed as a multi-functional space with astir colour design and active contribution of natural materials.

Walls should be considered as the main means to meet students' expectations about their study and work environment. Colours, materials, furniture and their combinations should be used in order to create a stimulating and comfortable space. They should be applied according to activities place analyzes.

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