Users perception in higher education spaces with emphasis on lighting and quality of views

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1 INTRODUCTION

School spaces of good quality are essential for the good development of activities and the well-being of students and teachers. Barrett *et al.* (2019) in a research on the impact of classroom design on student learning pointed out quality indicators for these spaces divided into naturalness, individualization and stimulation, several of which are linked to lighting.

This work then aimed to analyze the perception of users in a higher education building, with emphasis on natural lighting and the quality of views.

2 METHODOLOGY

Classrooms of a higher education institution were used as a case study. They underwent renovation in the period researched to replace tilting windows with translucent glass by windows with sliding panes and clear glass. The quality of the lighting and the level of recommendation of the views were analyzed, according to the criteria of NBR 15.215:2024 (ABNT, 2024), by computer simulation, before and after the renovation. Questionnaires were applied to students and teachers based on indicators pointed out by Barrett et al (2014), in 2019 and 2023, before and after the renovation and the pandemic. In the 1st stage, the users answered about the order of importance of aspects related to the quality of the spaces, and in the 2nd stage the same aspects were evaluated, but ranked on a scale of 5 levels from "irrelevant" to extremely important". These results were treated on a Likert scale from -2 to +2.

3 RESULTS

Computer simulations indicated a better quality of the view to the outside and higher levels of illumination after the renovation, although the levels of glare and incidence of direct solar radiation also increased.

In the 1st phase 490 valid responses were obtained and 409 in the 2nd, totaling 899 responses from students and teachers. The first stage revealed that lighting was the aspect considered most relevant for the quality of the classrooms, and the control of natural lighting was considered the determining factor for the space to be considered adequately lit, without a preference between natural or artificial lighting, as long as the room was well lit. In addition, 35% of teachers and 23% of students considered the presence of windows irrelevant at this stage. In the second phase, the aspects "good lighting", "infrastructure" and "acoustics" were

considered as "extremely important" by the average user. For students and teachers, the "presence of windows overlooking the outside" went from "unimportant" to "very important" (students) and "extremely important" (teachers). The control of natural lighting remained the most relevant aspect for a room to be considered well-lit, while natural lighting became the last priority of the respondents, indicating that if natural lighting is uncomfortable and uncontrollable, it is not desired.

The research showed in general that the conditions of the space and the expectations of users alter the perception of items considered as priorities, indicating that stressful items such as excess heat or noise will be prioritized and non-existent items such as views will tend to be disregarded, but if they are present, they will be valued. Lighting will be considered good if it is not disturbing and/or allows control, whether it is natural or artificial lighting.

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