

EVALUATION OF SPATIAL ORIENTATION CONDITIONS, UNDER THE OPTICS OF SAFETY, IN A UNIVERSITY BUILDING

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The study aims to evaluate the conditions of spatial orientation, from the point of view of safety, in a university building. For this, a multi-method approach was used, containing bibliographic research, exploratory visit, an accompanying walk a questionnaire. The results allowed identifying a series of challenges in the place and suggesting recommendations as installation of signs and signboard.

1. Context

Spatial orientation is treated as a cognitive process that precedes decision making and displacement within a space, being one of the four components of spatial accessibility, according to Dischinger, Bins Ely and Piardi (2012). Problems related to spatial orientation can be identified both in common environments and in larger and more complex environments, as is the case of many buildings found in university institutions - such as the object of study of the work which from the second decade of the 2000s was adapted for use as a university environment.

It is pertinent, due to its diverse public, an evaluation of the conditions of spatial orientation in the environment, which should be accessible and safe, especially in case of an accident. When emergency evacuations are required, signs and signboards should be located at appropriate points, ensuring accurate information to people at these times. Aiming at these scenarios, norms and laws, such as Norma Brasileira 9077 (2001), bring parameters for the elaboration of safe and easy to understand escape routes.

Given the above, the aim of this paper is to evaluate the conditions of spatial orientation, from the point of view of safety, at the Centro de Engenharias of the Universidade Federal de Pelotas (UFPEl),

allowing the proposition of improvements that minimize the risks in cases of incidents.

2. Method

2.1 Exploratory Visit

The methodology is a first contact with the object of study, allowing the knowledge of its main characteristics and a greater familiarity with the phenomenon that will be investigated. Metric and photographic surveys are usually performed and spreadsheets are filled in it. The method was applied at the beginning of the field research, aiming to reach the evaluation of the building's spatial orientation conditions from the technician's point of view, and a safety spreadsheet was applied. These spreadsheets have the main standards that support issues related to a correct escape route, such as NR-23 (2008), NBR 9077 (2001) and NBR 13,434 (2004).

2.2 Accompanying walk

The method called accompanied walk was developed by Dischinger (2000) and is an instrument for evaluation, based on the user's view of the conditions of the environment used. In other words, it is the fulfillment of a script by an individual who may have some disability, restriction or limitation related to the space, or even unaware of

the building. As the problems analyzed in this research are related to spatial orientation, activities related to difficult to locate spaces within the building were defined.

2.3 Questionnaire

The question script of a questionnaire should be answered individually, without interruption of the interviewer or any outside help, this being the main difference related to the interview method. The questionnaire was prepared in online format and available for completion for one week. The questionnaire was conducted with university students who attend or have already used some space of the building under analysis. The objective was to know the needs of individuals with different abilities and disabilities and to evaluate the conditions of spatial orientation and safety of the university environment under study.

3. Results

From the data obtained by the three applied methods, a discussion about them can be held. Approximately 35% of respondents report that security is generally fair. However, only 33% of people know where the emergency exit is. This can be observed in the accompanied tour, where four of the six guests found the place after searching for them, not knowing where it is initially.

Observing the results obtained from the exploratory visit, it is noted that there is no sign, in the whole building, related to safety or emergency exit. Among many others, this may be one of the reasons why 20% of people report in the questionnaire that there is no escape route prepared for claims in the building under study.

The emergency exit from the building under review has two essential devices for such an environment: fire doors and artificial motion-activated lights. According to the participants of the tour accompanied by these devices it was possible to identify the environment, although they tried other doors before confirming their opinions. Inside the exit, no signs or collective fire protection equipment were found.

In addition to these devices, the exploratory visit

identified others, which are not desired: objects that serve as obstacles. Tables, chairs, clothes, cabinets, dumpsters and personal utensils were identified. These, in moments of panic, hinder the quick reasoning for the abandonment of the building, and can lead to deaths in case of accidents. To solve the problems encountered first would be the placement of plates, as demonstrated by NBR 13.434 (2004).

Still, other questions were raised in the questionnaire, such as: lectures from the city Fire Department about how to behave when there are accidents; creation of research and extension projects for a more detailed study of the concepts analyzed in this work and finally a discipline common to all engineering that dealt with safety, covering concepts such as emergency exits, fire protection equipment and occurrence of claims.

After being asked how they consider the signs and signboards of the analyzed building, most participants believe they are not good (62.5% - bad and very bad). Also, it is noteworthy that approximately 10% of respondents report not having plaques in the study environment.

In agreement with the presented data, although most of the proposed environments were found, the participants of the accompanied tour reported, without exception, that the building needs signs to guide users. With these, in good use and in necessary points, would be facilitated the process of interpretation of the information provided by the environment for future displacement.

4. Conclusion

Through the accompanied walk and questionnaire methods, it was observed that most of the participants did not locate the emergency exit of the building. The reason for this is the lack of signs and signboards indicating these security mechanisms. From the results of the exploratory visit, through the safety spreadsheet, it was found that these signs do not exist, converging with what was observed in the other two methods. Thus, it can be concluded that, regarding safety, the conditions of spatial orientation are poor and need improvement.

Evidencing the problems, the basic solution for correcting the nonconformities related to spatial

orientation in the analyzed building is the placement of signs and signs. When these are at strategic points and correctly - with text, pictogram, Braille and contrasts - it is easy to locate the environments, expanding users' decision making in front of the space.

5. References

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