

**69 - PERCEPTION SIGNIFICANCES ON OFFICES ACCORDING TO GRADUATE STUDENTS:  
AN EXPLORATORY STUDY**

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### 1. INTRODUCTION

In the contemporary civilization, urbanization as a process and the city as the resulting materialized form are so remarkably present that one can hardly think any period of history when there were either no cities, or cities with only a diminished role. Nowadays city is the accumulated result of every other cities of before, transformed, destructed, reconstructed, produced by the social transformations occurring along time, generated by the relationships behind those transformations. Urbanization by means of industrialization has to be considered not only due to the high number of people who came to live in cities, but mainly because the development of industrial capitalism deeply transformed the shape of urbanization regarding the role and the inner structure of those cities (SPOSITO, 1998).

Globally, more than half the world population (54%) lives in urban areas, a considerably higher share than in 1950 (30%). Estimates for 2050 are of one third of world population (34%) being rural and two thirds (66%) being urban, that means, the inverse relationship of that existing in the beginning 20th century. In Brazil, about 85% of the population is already urban, and a 91.1% is projected for 2050 (UNO, 2015). The growing mechanization of agriculture and the automation in industry have caused the migration of the surplus work force to the service industry: trade, health, education, offices, banks, safety, maintenance, leisure and other. Thus, urbanization and modernization of society cause the service industry to be the rapidly growing industry (IIDA; GUIMARÃES, 2016).

An office is defined as a room or a set of rooms in which there is business administration, reception of customers etc. (HOUISS, 2001). Further, there are diverse activities in offices, like routine tasks (journal entries), as well as complex, intellectual and creative activities (as writing reports or developing projects). In general, office tasks require cognitive and motor activities, with the predominance of the first. Cognition comprehends the functions of perception, attention, memory, information processing and decision-making, and each one may be distinctly influenced by environmental variations (IIDA; GUIMARÃES, 2016).

People spend most of their lives in indoor environments as their houses, workplaces and other buildings (MONTEIRO et al., 2015). Evans (2003) noticed that the built environment features may influence the mental health in two ways: a) direct effects: housing, crowding, noise, indoor air quality and lighting; and b) indirect effects: personal control, social support and restoration. In literature, there are remarkably many studies on high-rise buildings for housing and their influence on the occupants (FANNING, 1967; GIFFORD, 2001; EVANS, 2003; EVANS et al., 2003; YUEN, 2005 e GIFFORD, 2007). One can also find studies regarding the specific effects of the physical environment of the work place on the performance and/or satisfaction of workers (LEATHER et al., 1998; JUNG e BAE, 2004; VISCHER, 2007; ZHANG e ALTAN, 2011; KAMARULZAMAN et al., 2011 e HERR et al., 2016). Nevertheless, few studies were published on the issue of offices being low-rise and high-rise, and their workers.

Therefore, the goal of the current article is to explore, by means of the perception of graduate students, the significances associated to the office they identify with, and to the ideal office; in addition, answers to a questionnaire are analysed to find mentions to the building floor (low-rise building and high-rise building).

### 2. THEORETICAL FRAMEWORK

According to Heimstra and McFarling (1978), behaviour is any form of activity, which is observable, directly or indirectly, as an extremely complex matter because it is changeable, fluid and ephemeral. The human behaviour is by many ways related to the features of the physical environment, which is possibly capable of instigating strong feelings and attitudes, positive and negative. We consider physical environment everything that surrounds one person, being classified as natural environment and built environment (those that was designed and shaped, in a broad scale, by humans).

Further, according to Okamoto (2002), people feel an environment by the stimuli from it, even if not aware of it. By the selective mind, facing the bombing of stimuli, one selects either those of interest or those that have raised attention, and then perception (imagery) and consciousness (thinking, feeling) take place, resulting in a response, which leads to a behaviour. According to Elali (1997), writing on perceptual aspects of the human-environment relationship, the daily contact with an object makes a person a demanding and authoritative critic of that product. Thus, the function "use" enables the person to make that analysis.

Three techniques are most usual in the empirical Social Sciences to comprehend the human behaviour: (1) to observe the behaviour that naturally occurs in the realm of reality (2) to create artificial situations and to observe the behaviour facing pre-defined tasks for those situations; and (3) to ask people about what they do, did and what they think, thought about (KISH, 1987 apud GÜNTHER, 2008).

For Schmid (2005), the sensation of the built environment comprehends to know oneself involved by cares, stimuli and remembrances. According to Heimstra and McFarling (1978), inadequate lighting may directly impair efficiency of a worker occupied in a task which requires visual effort. If the planning fails to prevent or reduce noise, a worker may be annoyed and distracted by a simple conversation between two colleagues. Noise affects not only the worker emotional state, as also efficiency. This effect is indirect and results from a relationship between a physical feature of the office space and the people within it.

According to Houaiss (2001) identify is to distinguish the characteristic features; to confuse oneself with some other person; to be recognized. The concept of ideal refers to idea, something that exists only in thinking; that possess, in a superlative degree, a law, an ideal; perfect.

As a single-story or low-rise building we consider a single-story building with or without a mezzanine, which may occupy 1/3 of the ground floor area (CSCIP, 2015). According to Gifford (2007) the minimal definition for a building to be considered high-rise is to have more than three levels

3. METHODOLOGY

The present study consists of an exploratory study for raising the opinion with a qualitative approach. According to Sampieri, Collado and Lucio (2013) the qualitative approach has as a goal to describe, comprehend and interpret phenomena by means of perception and meaning produced by the experience of the participants. Fez subjects are involved in the sample, as the purpose is not to generalize the quantitative results of the present study.

We chose the convenience sample, which is non-probabilistic (not random). Therefore, to develop the research, we had the participation of 39 graduate students of the Graduate Program in Civil Construction Engineering (PPGECC) of the Federal University of Paraná, in the city of Curitiba, Brazil, in 2017.

As a tool for raising data we adopted a mixed questionnaire, composed by both open and multiple-choice questions. The questions were organized in categories, such as the physical description of the participant's current or former work place (low-rise or high rise), a description of the office with which the participant has identification, and the description of an ideal office, as well as participant data (such as gender and age).

The questionnaire was applied on April 12, 2017, at the PPGECC, UFPR. The first author explained the purpose of the study and the data raising protocol. The present graduate students was given the choice to participate or not. Each participant received the questionnaire to be filled individually, based on the own perception and lived experience, with no need for personal identification. Average time for answering the questionnaire was shorter than 40 minutes. After data collection, we proceed to the analysis, codification, categorization and tabling of data.

As a technique to analyse the contents of answers to the open questions, we choose the category analysis. According to Bardin (2016) the category analysis works by operations of dismembering the text in units, in categories according to an analogical regrouping. One goal of the categorization is to provide, by condensation, a simplified representation of the raw data.

4. RESULTS AND DISCUSSION

We observed that the gender of the sample is approximately uniform, being 51% (n=20) female and 49% (n=19) male. Age of participants was by 74% (n=29) in the range from 20 to 30, followed by a 13% (n=5) from 31 to 40, 8% (n=3) from 41 to 50 and 5% (n=2) from 51 to 60. Thus, one notices that the sample is composed mostly by young people.

In the current study sample (n=39) we noticed that 32 participants declared to have a past experience working, or to currently work in a low-rise building, and 30 participants declared to have a past experience working, or to currently work in a high-rise building. This result shows that participants have, in their majority, both experiences of working in a low-rise, as in a high-rise building.

The software Microsoft Office Excel 2007 was used for data tabulation and graphic display of results. Categorization was conducted in three stages: (1) expressions mentioned were grouped according to the significance, (2) theme categories were created to regroup the significances with common features, and (3) the share of categories was computed according to the frequency of mentions in the answers to each question. Therefore, the shares refer to the participants who answered to the question. It is remarkable that the majority of the participants mentioned more than one significance in the answer to each question, explaining the reason for the sum of shares of categories being higher than 100%.

4.1 Significances associated to identity and ideal about office

We consider the question "Along your professional life, which office (current or past) do you identify with? Describe it". 36 participants answered. In order to analyze the contents, 108 mentions were grouped into 80 significances. Later, these significances were regrouped again and yielded 24 categories. Figure 1 presents the share of 23 of these categories according to the number of times that those significances appeared. The 24th category, called others, refers to 18 significances which have no common features, and which were named only once by participant.

Now, we consider the question: "How does an ideal office look for you?" All 39 participants answered. In order to analyze the contents, 151 mentions were grouped into 93 significances, which were regrouped into 25 categories. Figure 2 shows the shares of 24 categories according to the frequency of mentions. The 25th category, called others, refers to 24 significances that have no common features and were named only once by participant.

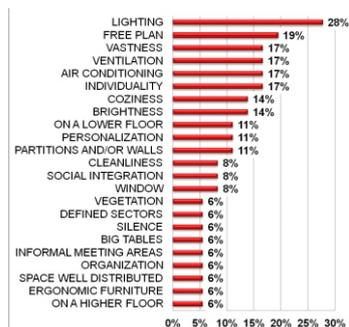


Figure 1 - Categories of the office which participants identify with.

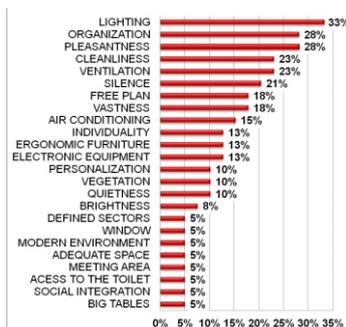


Figure 2 - Categories of the participant's ideal office.

Figures 1 and 2 show that 15 meanings were mentioned by the participants both in the question about the office with which they identify themselves and in the question about the ideal office: lighting, free plan, ventilation, vastness, air-conditioning, individuality, brightness, personalization, cleanliness, window, defined sectors, green, organization, big tables and ergonomic furniture. We highlight the fact that lighting was the most frequently mentioned significance in both the answers to open questions.

b) Mentions to the level of the office participants identify with

Answers of participants who specifically mentioned the floor level when answering about the office they identify with are transcribed here:

"Sanity office on the 2rd floor of a building with partitions". (p. 5, current office on the 2rd floor).

"The former office. It was at the ground level, with an U-shaped plan and a big central garden. To be surrounded by

green is very pleasant". (p. 12, current office on 2rd floor).

"An office at the ground floor with no partitions" (p. 23, current office on 1rd floor).

"The former space. It was bigger, at a lower level, and more comfortable, although there were more people (7) sharing the same room". (p. 29, currently on the 4th floor).

"7<sup>o</sup> floor, no partition, custom furniture, allowing interaction between all of the team members". (p. 27, office on 10th floor)

"Office on the 13th floor of a building located in Batel. Large room with meeting room. Individual tables forming a square". (p. 27, unresponsive floor). Note: Batel is a district of Curitiba considered noble, with the highest real estate value.

c) Mention to the floor level of the ideal office according to participants

We transcribe the answer of a single participant who specifically mentioned the floor level when answering about the ideal office:

"If small, a small room in an office in downtown (but not in too much central location). If big, a house which is well located. Both with a modern environment and favourable to creativity". (p. 14, current office on 2nd floor).

## 5. FINAL CONSIDERATIONS

Through the content analysis of the questionnaire responses, we observed that 15 meanings were mentioned by the participants in both the question about the office they identify with and the question about the ideal office: lighting, free plan, ventilation, vastness, air-conditioning, individuality, brightness, personalization, cleanliness, window, defined sectors, vegetation, organization, big tables and ergonomic furniture.

In addition, we found six mentions to the floor level of the office the participants identify with, and a single mention in the answers about the ideal office.

This study may support the improvement of ideas and the creation of hypotheses on the workers perception about their workplace, having as an independent variable the building height.

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#### PERCEPTION AND SIGNIFICANCES ON OFFICES ACCORDING TO GRADUATE STUDENTS: AN EXPLORATORY STUDY

##### ABSTRACT

The purpose of the current study is to explore, by the perception of graduate students, the significances associated to the office they identify with and to the ideal office, as well as to verify in the answers to the questionnaire if there are mentions to the floor level (low-rise and high-rise building). The data was collected by means of a mixed questionnaire applied to 39 graduate students of the Graduate Program in Civil Construction Engineering at the Federal University of Paraná, in Curitiba, Brazil. As a result, we observed that 15 meanings were mentioned by the participants in both the question about the office they identify with and the question about the ideal office: lighting, free plan, ventilation, vastness, air-conditioning, individuality, brightness, personalization, cleanliness, window, defined sectors, vegetation, organization, big tables and ergonomic furniture. In addition, we found six mentions to the floor level of the office the participants identify with, and a single mention in the answers about the ideal office. This study may support the improvement of ideas and the creation of hypotheses on the workers perception about their workplace, having as an independent variable the building height.

Keywords: Office. Low-rise building. High-rise building.

#### PERCEPTION ET SENS AUX BUREAUX SELON LES ÉTUDIANTS DIPLÔMÉS: UNE ÉTUDE EXPLORATOIRE RÉSUMÉ

Le but de la présente étude est d'explorer, par la perception des étudiants diplômés, les significations associées au bureau avec lequel ils s'identifient et au bureau idéal, ainsi que de vérifier dans les réponses au questionnaire s'il y a des mentions à l'étage niveau (bâtiment bas et élevé). Les données ont été recueillies au moyen d'un questionnaire mixte appliqué à 39 étudiants diplômés du programme d'études supérieures en génie de la construction civile à l'Université fédérale du Paraná, à Curitiba, au Brésil. En conséquence, nous avons que 15 significations ont été mentionnées par les participants à la fois dans la question, sur le bureau auquel ils s'identifient et la question sur le bureau idéal: éclairage, plan libre, ventilation, immensité, climatisation, individualité, luminosité, personnalisation, propreté, fenêtre, secteurs définis, végétation, organisation, grandes tables et mobilier ergonomique. En outre, nous avons trouvé six mentions au niveau du bureau auquel les participants s'identifient, et une seule mention dans les réponses au sujet du bureau idéal. Cette étude peut soutenir l'amélioration des idées et la création d'hypothèses sur la perception des travailleurs sur leur lieu de travail, ayant comme variable indépendante la hauteur du bâtiment.

Mots-clés: Bureau. Bâtiment de faible hauteur. Immeuble de grande hauteur.

#### PERCEPCIÓN Y SIGNIFICADO EN LAS OFICINAS SEGÚN LOS ESTUDIANTES GRADUADOS: UN ESTUDIO EXPLORATORIO

##### RESUMEN

El objetivo del presente estudio es explorar, por la percepción de los estudiantes de posgrado, los significados asociados a la oficina con la que se identifican y a la oficina ideal, así como verificar en las respuestas al cuestionario si hay menciones al piso nivel (edificación de una sola planta e edificio alto). Los datos fueron recolectados mediante un cuestionario mixto aplicado a 39 estudiantes de posgrado del Programa de Posgrado en Ingeniería de Construcción Civil de la Universidad Federal de Paraná, en Curitiba, Brasil. Como resultado, observamos que 15 significados fueron mencionados por los participantes tanto en la pregunta sobre la oficina con la que se identifican y la pregunta sobre la oficina ideal: iluminación, espacio libre, ventilación, amplitud, climatización, individualidad, claridad, personalización, limpieza, ventana, sectores definidos, vegetación, organización, grandes mesas y mobiliario ergonómico. Además, encontramos seis menciones en el nivel del piso de la oficina con las que los participantes se identifican, y una sola mención en las respuestas sobre la oficina ideal. Este estudio puede apoyar la mejora de ideas y la creación de hipótesis sobre la percepción de los trabajadores sobre su lugar de trabajo, teniendo como variable independiente la altura del edificio.

Palabras-clave: Oficina. Edificación de una sola planta. Edificio alto.

#### PERCEPÇÃO E SIGNIFICADOS SOBRE ESCRITÓRIOS SEGUNDO ESTUDANTES UNIVERSITÁRIOS: UM ESTUDO EXPLORATÓRIO

##### RESUMO

O objetivo deste estudo é explorar, por meio da percepção de estudantes universitários, os significados associado ao escritório com que se identificam e ao escritório ideal; bem como verificar nas respostas do questionário se há menção ao pavimento da edificação (edificação térrea e edifício alto). Realizou-se a coleta de dados por intermédio de um questionário misto, aplicado em 39 estudantes universitários do Programa de Pós-Graduação em Engenharia de Construção Civil da Universidade Federal do Paraná, em Curitiba, Brasil. Como resultado, observou-se que 15 significados foram mencionados pelos participantes tanto na pergunta sobre o escritório com que se identificam como na pergunta sobre o escritório ideal, sendo iluminação, planta-livre, ventilação, amplitude, climatização, individualidade, clareza, personalização, limpeza, janela, setores definidos, vegetação, organização, mesas amplas e mobiliário ergonômico. Ainda, identificou-se nas respostas seis menções ao pavimento do escritório com que os participantes se identificam e somente uma menção ao pavimento sobre o escritório ideal. Este estudo poderá auxiliar no aprimoramento de ideias e na criação de hipóteses sobre a percepção dos trabalhadores em relação ao local de trabalho empregando como variável independente a altura da edificação.

Palavras-chaves: Escritório. Edificação térrea. Edifício alto.

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