Accessible Hotel for Visually Impaired People

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Abstract

The current article is about the analysis of accessibility of hotels in Natal city for visually impaired people – VIP. Initially it was performed a survey in medium and large size hotels in Natal city and then the accessibility of 16 four and five-star hotels was assessed by using a tool for observation based on the NBR9050/2004 (Brazilian technical Norm). It was used as methodology the Ergonomics Work Analysis and the Cognitive Task Analysis (simulated) which were performed by the VIP. It was observed that the assessed hotels, mostly in the case study, are poorly accessible to VIP. From the analysis it was developed and presented a descriptive memorial on the transformations required, containing both organizational and technical measures, assistive techniques and staff qualification so as to adjust the hotel to a more qualified service provided to visually impaired people.

Keywords: ergonomics, accessibility, visual impairment, hotels, tourism.

1 Introduction

According to data from the 2000 census from IBGE – Brazilian Institute of Geography and Statistics, Brazil has 24 million visually impaired people, out of which 16,6 million have some degree of visual impairment and 148 thousand declared to be blind. 57 thousand blind people are concentrated in the northeastern region and 17% in Rio Grande do Norte State (IBGE, 2000).

The issue of accessibility for visually impaired people (blind and with low vision) as discussed in the article, lacks more effective actions, norms and policies not only by the public power but also by companies, specially hotel organizations. Even though visually impaired people account for the greater part of disabled individuals in Brazil (48%), governmental and company actions primarily aim at motor-disabled people, who represent 23% of disabled population (IBGE, 2000).

Tourism is responsible for great part of economy in Natal city, which appears in the Brazilian Quality Census for small, medium and big hotels in the National Hotel Industry, performed by the National ABIH (Brazilian Association of Hotel Industry) in the eighth position in the hotel availability ranking, representing 1,2% of the lodging in the national market, which accounts for 27 thousand rooms (ABIH, 2006).

The current paper analyses the accessibility of hotels for visually impaired people (VIP) in Natal city, Brazil and suggests improvements. The improvement of the hotels in terms of accessibility, either full or assisted, shall provide assistive technologies and facilitate the access of visually impaired people and also contribute to the improvement of the mobility and autonomy of people, mostly visually impaired and the decrease of accident risks..

2 Cognitive Ergonomics

Cognitive Ergonomics dedicates to the study of the mental work load, the decision making process and its expected performances. On a broader concept, Vidal(2008) refers to ergonomics as a subject that focuses on the adjustment between skills and human limitations, machines, task, ambient, but it also observes the

use of certain mental faculties, the ones which enable us to operate, i.e. , to think and make decisions at work. The author also states that cognitive ergonomics has as its object the cognitive "representation" and the "perception" as a way of having contact with the ambient.

Sperandio & Uzan in Falzon (2007) established the difference between the ergonomic project for non-visually impaired people and for VIP by saying that, in the case of disabled people, the ergonomist must refer to the characteristics out of the norm, both for being far from the data usually obtained in the general population and also for not corresponding to the technical and commercial normalization. Not only the characteristics of people themselves, the ones in which the inter individual differences are frequently big, even inside the same category of disability, are out of the norms, but also the features of materials, contexts of use, social ambient, etc.

Adapting man to work situation involves complex abilities and cognitive capacities which conventional work analysis- simply using observational actions in the work environment, can not explain. The incorporation of the cognitive component in the analysis of work has become a necessity in order to understand the activities involved in the modern and complex systems of work (CARVALHO & VIDAL, 2008).

In order to understand the activities that involve complex abilities and cognitive capabilities, the current about the case study used methods from Cognitive Task Analysis, which were punctual in the observation of tasks, thus enabling the identification of aspects which did not appear during the Ergonomic Work Analysis.

3 Visual Impairment

Visual impairment can be characterized as blindness, in which visual acuity is equal or smaller than 0,05% in the best eye with the best optical correction; or low vision, which means visual acuity between 0,3 and 0,05 in the best eye, with best optical correction. There are also cases in which the sum of the measurement in both eyes is equal or smaller than 60% (BRASIL, 2004).

Silva (2008) points that there are cases in which the blindness is caused by diseases which occur specifically in the eye, such as glaucoma, cataracts and peripheral and central dystrophies and other cases in which such condition is associated to other organic problems such as diabetes or neurological syndromes which affect the optical nerve. In such cases, blindness is generally progressive, with variable time until total loss of vision, There are also cases of blindness acquired in a sudden way through traumas and violence.

Personal factors (cognitive, sensorial, psychological, physical and related to perception), and also environmental (color, contrast, time, space and light) may potentialize or aggravate the level of visual functioning due to alterations in the visual functions, namely the visual acuity, visual field, ocular motility, cerebral functions and the perception of light and color (PORTUGAL/Ministério da Educação, 2008).

In large ambiences, visually impaired people have greater difficulties to understand the layout, direction and orientation for not being able to perceive visual references which people who can see use to perceive the surroundings or to update an information (JACOBSON, 1999, apud ALMEIDA et al, 2007.

4 Accessibility and Tourism

Accessibility is the "possibility and condition of reach, perception and understanding for the safe and autonomous use buildings, space, furniture, urban equipment and elements" (ABNT, 2004).

According to Bins Ely (2004), in order to assure the accessibility it is necessary to identify the elements which stop or restrain the perception, understanding, circulation or appropriation by the users of spaces and activities, as well as the obstacles of social or psychological nature which prevent their effective use.

According to Lopes & Burjato (2010), the obstacles to mobility and communication of people with sensorial disabilities (auditory, visual or speaking) are more related to the orientation and spatial concepts, to feelings of isolation, discomfort related to the position and use of equipment and objects, unsafety and incomprehension than just to inadequate dimension of spaces, as it occurs with people who have some sort of motor disability and who need minimal dimensions to move in the ambient with autonomy and safety.

The accessibility projects which will benefit visually impaired people must consider not only their everyday or work activities but also their leisure activities performed in lodging contexts (hotels, etc.)

The social inclusion of the disabled person is still not well considered in society, specially in tourism companies.

5 Methodology

For the analysis of accessibility, it was adopted as methodology the Ergonomic Work Analysis (WISNER, 1994, GUÉRIN, 2001, VIDAL, 2008). Using this methodology, a survey was done in medium to large sized hotels in Natal city and then an accessibility assessment was performed in 16 hotel with 4 or 5 stars, using an observation tool based on the NBR 9050 (ABNT, 2004).

From the ergonomic and accessibility criteria one hotel was selected from the 16. It will be fictitiously named Solis Hotel and it will be the subject of a focused study with the presentation of measurements and improvements. The current study uses interviews with 7 employees of the mentioned hotel and also 4 visually impaired people, situated observations and Cognitive Task Analysis (CRANDALL et al., 2006; SEAMSTER et al., 1997; CARVALHO & VIDAL, 2008). In order to achieve the aim of the study, it was created a script with tasks to be simulated by the participants.

Such tasks were simulated for each one of the 4 visually impaired people (not guests) invited to take part in the research without the help of a guide who can see for as long as possible using only a walking-stick for personal use. The performing of the tasks was followed, photographed and filmed by two researchers on different days. Afterwards the films were analyzed by the individuals involved (VIP and hotel staff) during a self-confrontation (method) session about the issues of accessibility and the related cognitive processes during the simulated tasks.

The VIPs who participated in the filming were given fictitious names as Mateus, Marcos, Lucas and João, and the employees were named Cosme and Damião. The filming situations, in the case of Mateus and Marcos were normal and they were all guided by a bellboy. Lucas and João faced abnormal situations during which, in the case o Lucas, there was a light shortage and the elevator could not be used, whereas for João, the simulation happened during a very busy day. On the latest two situations, the employees were unavailable, so the researcher played the role of a bellboy.

From the analysis, and through the observation of normative recommendations (NBR 9050) available in the specific literature it was produced a descriptive memorial of the transformations (GUÉRIN et al, 2001), which was presented and validated by focal groups and which contains organizational, design and technical measures aiming to allow the improvement of accessibility for visually impaired people in the aforementioned hotel.

6 Results and Analysis

The results of the analysis about the simulated tasks performed by the VIP in the hotel are presented as follows:

A) Getting in the hotel: to begin the simulation, visually impaired people were positioned in front of the hotel entrance, on the sidewalk. Though the doormat was not aligned to floor level, as determined by NBR 9050/2004, none of the volunteers had problems during this phase.

B) Going toward reception: There was no type of directional tactile signaling on the floor, but moving on a straight line they could reach reception by themselves and were helped by the bellboy Cosme. Mateus and Marcos headed to the reception by themselves, without any help of employers. During the self-confrontation session, Mateus and Marcos reported that when they entered, they heard people talking on their left and then followed the sound, supposing that there is where the reception desk would be located.

Visually impaired Lucas entered the hotel with the help of the researcher for there was no electricity during that day and most employees were organized to help cover the necessities caused by the blackout. The moment he arrived at the hotel door, João was helped by Cosme and taken to the reception desk.

C) Requesting the key and checking-in: When Mateus approached the desk he talked to the receptionist and requested him the key of his room. The receptionist, who we will call Damião, stretched his arm with the keycard on his hand and both (he and Mateus) stay still for some time until he realized and touched the hand of Mateus with the key. The same situation happened with the other VIP (picture 1).

Picture 1: The employer gives the keycard to Mateus.

D) Go to the elevator: such activity differs between the individuals. Mateus went escorted by employee Cosme who walked ahead of him. Without touching him, Mateus was led by Cosme only through verbal communication (Picture 2).

Picture 2: The employee Cosme escorts Mateus on the way to the elevator.

The employee Cosme tried to guide Marcos in the same way that he did with Mateus, but there was a woman in a wheelchair on the way so he stood behind Marcos and by holding his hand was able to guide him along the way and swerve from the woman (Picture 3).

Picture 3: The employee Cosme helps Marcos swerve from the woman in the wheelchair.

E) Press the button on the elevator panel: The button panel on the elevator is made of glass and has a touch-sensitive electronic command, not having any indication in Braille or embossed. While was guiding Mateus and Marcos, Cosme himself activated the button on the panel (picture 4) and explained them the functioning of the panel while they waited for the elevator to come.

Picture 4: Employee Cosme presses the button on the elevator.

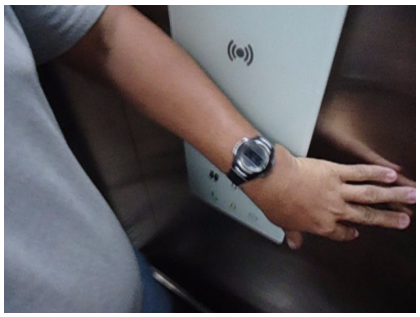
For João, the button of the elevator was pressed by the researchers, and in the case of Lucas, the way to the apartment was made through the stairs, for once there was no electricity at the moment of the task, the lift was not working.

F) Using the elevator:

F.1) Entering the elevator. The NBR 9050 determines the installation of an alerting tactile floor next to the elevator's doors. However, the hotel did not have such floor. Without the tactile floor, in order to measure the distance to the door, Mateus stands in a position that may easily make him bump into someone coming out of the elevator. When entering the elevator, his left arm hits the door while Cosme put his own hand in the door sensor to prevent it from closing (Picture 5).

Picture 5: Mateus entering the elevator.

Mateus, Marcos and João entered the elevator groping along the cabin with the left hand at the height of their waist to recognize it (Picture 6). This kind of behavior called our attention to the placement of informative elements at that height. The moment of using the elevator did not happen with Lucas, who used the stairs to head to his room.



Picture 6: João gropes for the button panel.

F.2) Press the button for the desired floor: When entering the elevator, Mateus and Marcos waits for Cosme to press the button for the desired floor. The panel inside the cabin is also touch-sensitive, where the floors are typed similarly to a phone, "what makes it even more complicated", says Marcos – considering the hotel has only three floors.

While João explained the functioning of the panel, the researcher noticed that there were numbers written in Braille, almost without relief and above the arabic numbers. During the interview, João reported his difficulty in using elevators.

"The greatest difficulty I found, as usual, was in the elevator. Generally hotels have an elevator man, so there is no need to worry. But in that case, there is no elevator man, so it is complicated. I'd rather go by the stairs, otherwise I would keep going up and down, up and down" (João – Visually Impaired).

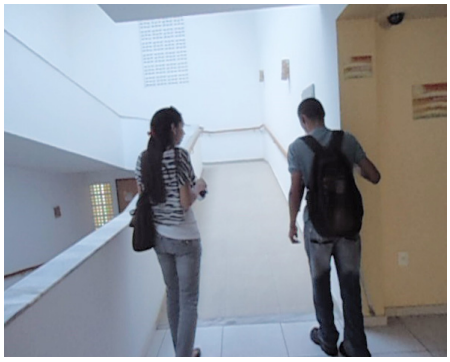
G) Move to the room: When leaving the elevator, Mateus is guided by Cosme to a slope which leads to the rooms. The employee shows the direction and then moves ahead of the VIP to continue guiding him and telling him directions. On the first change of direction in the slope, Mateus almost hit the legs of the bellboy with the walking stick, which demonstrates how inexperienced the employee is in guiding him.

Mateus kept changing his guiding strategy, alternating the hits of his walking stick between the walls on the right side and left side. Sometimes he would hit very close to the fire extinguishers located on the walls of the corridor and once he hit a cleaning trolley left in the middle of the corridor by a cleaner who was tidying rooms.

Mateus finds it difficult to move along the corridors, complaining about it in the interview:

" The difficulty that exists is because there is no tactile floor for you to guide yourself on that floor. The curves it has, you have to adapt yourself, if you go alone you will find it difficult to know your room number. Unless there was a number in Braille on the wall, next to the apartment(...) like any other person who keeps looking at numbers, it is the same with us" (Mateus – VIP).

In order to do the recognition of the hotel, Lucas preferred to use only his long walking-stick to trace the way. During the itinerary, he bumped into guests, employees, the researcher and the walls due to the absence of elements that could guide him in open places (Picture 7).



Picture 7: Lucas hits the wall with his body.

The researcher guided João, while he kept asking questions that could identify the routes they were doing towards the room, the direction taken and the amount of doors.

H) Open the door and enter the room: When he stopped along with Mateus next to the apartment, Cosme takes the keycard in his hand and explains the best way to use the card. During the activity we see the employee himself hold the card in the correct way to fit into the lock. Such situation clearly demonstrates the dependence such kind of system, very common in hotels, imposes to VIP. The tactile information on such key is not predicted by the norms such as the NBR 9050/2004, though we know that this door opening system may confuse even people who can see, as reported by the employee Cosme during the interview on the place:

"When people come, they don't read the instruction of the card. What is written correctly, how to open the door [he then points to the card]. So they come, insert the key in the lock and then wait for the door to open by itself. Actually, they put and remove it at the same time [he does the movement explaining the right way to use the key]" (Cosme – hotel employee).

When the information is not transmitted intuitively, it becomes an inaccessible barrier, so that the user does not interpret it easily, making it difficult to use equipment, spaces or furniture. In the case of visually impaired people, the lack of effective information may result in the total impossibility of use by these guests.

7 Technical, Design and Organizational Measures to be Adopted in Order to Improve the Accessibility for Visually Impaired People in the Solis Hotel

The analysis of accessibility for visually impaired people in the referred hotel allowed to elaborate a set of technical and organizational measures to be implemented considering the tasks performed by the individuals in the hotel and what is stablished in the NBR 9050 and also certain legal devices :

A. Entering the hotel:

   To provide tactile elements to be used as guides;

   Remove the alerting tactile floor that exists on the sidewalk, once it is being misused;

   Leveling the doormat with the floor;

   Using a band with contrasting colors on the doors.

B. Going to reception:

   Install directional tactile floors at the entrance complemented by tactile maps (Picture 8).

Picture 8: Recommendation of directional floors and tactile maps at the entrance of the hotel.

C. Receiving the room key and checking in:

Qualification training for employees

D. Moving to the elevator: Installing a directional tactile floor from the check in desk until the entrance of the elevator towards de elevator's button panel

E. Pressing the elevator' button:

To change the touch sensitive system of the buttons to perceptible buttons with informations in Braille language;

To place in Braille the same printed information available;

Increase the fonts and contrasts of printed information.

F. Using the elevator:

To install an alert tactile floor next to the elevator's doors.

To install alert sounds at least at the opening of the elevator's doors.

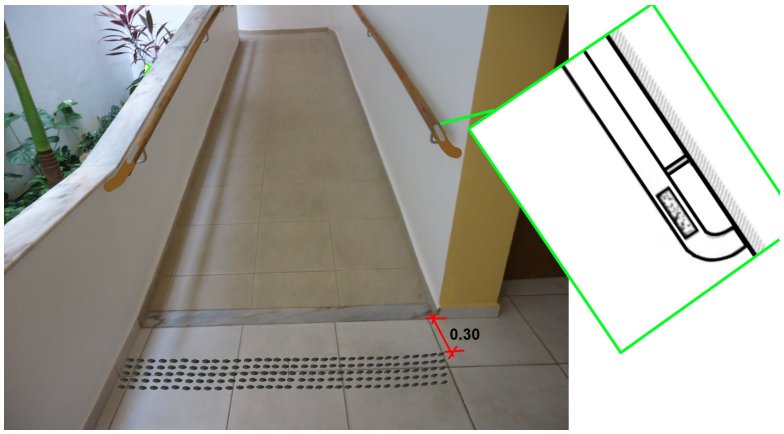
To make legible the information in Braille so as to allow the reading of the system.

G. Moving to the apartment:

To train staff in order to improve the guiding technique;

To install alert tactile floor before and after slopes.

To round the extremities of handles along the ramps fixing them to the walls and to install signs with information in Braille (Picture 9).



Picture 9: Proposal of handle fixed to the walls and alert tactile floor.

To install tactile signals alerting the presence of fire extinguishers, or

To install supports to hold the equipment on the floor, such as some that exist in the hotel (see Picture 10).

Picture 10: Fire extinguishers with floor bases.

H. Opening the door and entering the room:
To number the apartments in Braille and in highly contrastive colors.
More intuitive writing on the key card and an embossed arrow on top showing the right position.
As a short-time alternative it is possible to prick or cut one of the corners of the card, this giving a reference point to the VIP.

8 Conclusion

The ergonomics approach through the Ergonomic Work Analysis and the Cognitive Task Analysis methods have demonstrated to be fundamental to analyze, understand and project the accessibility of a constructed ambient (hotel) in a situated way and considering the real activities performed by the users, specially visually impaired people.

It is clear that, both from the assessment of conformity to accessibility of hotels in Natal city to the current norms and the analysis of simulated activities in the focuses hotel, that all of them present quite significant deficits of accessibility, concerning the buildings, spaces, technologies, furniture, equipment and staff qualification to deal with disabled people, particularly those who are visually impaired.

The hotels in Natal city lack plans and project for accessibility and the organs from the Municipal and State government do not have an effective action to assure that these places become accessible to visually impaired people or simply to people, universally.

The results obtained in this research and confrontation with the legal normative recommendations reveal that the hotels need an accessibility plan aiming to supply the comply with the demands of visually impaired people.

The lack of proposals which make the staying for the VIP comfortable and safe may be considered a way of exclusion and negligence from part of the hotel enterprises studied to this part of the population, for it prevents them from enjoying adequately tourism and hotel services provided in Natal city.

It must be taken into consideration that, besides being a differential in the market, once few hotels have the necessary resources to provide visually impaired guests with independence, to make available a service with quality means to effectively comply that demand from the customers and include them in tourist programs more and more.

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