



## THE INTERFACE BETWEEN USER CENTERED DESIGN (UCD) AND SUPPORT HUMANIZED FOR THE HOMELESS POPULATION (PSR): FOUNDATION OF THE INTERIOR PROJECT OF THE SUPPORT HOUSE PARANGOLÉ

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### Abstract

This article deals with the theoretical and methodological foundation of an Humanized Support House Interior Design for Street Situation People (SSP), in Florianópolis, Santa Catarina, Brazil. Aimed at serving and supporting SSP, the article intends to present the research to substantiate an ergonomics correction proposing an Support House Interior Design Model linked to Florianópolis town hall. The Parangolé House was inspired by the multifunctionality of the environments, User-Centered Design (UCD) and ergonomics guidelines. It constitutes a case study, with investigation aided by the application of research techniques, such as: documentary and bibliographic survey in secondary sources, semi-structured interviews, observations and on-site investigation of some Institutions focused on SSP, and application of the Analysis Content technique. This research intends to propose a Model Project that can contribute to support researchers and professionals interested and involved in Interior Design Institutions that support homeless people, exposing relevant solutions that confront legal and normative determinations to real situations, emphasizing demand needs, ergonomic principles, such as those referring to the application of the UCD, in humanized support houses.

**Keywords:** Support House; Social project; Interior Design (ID); Street Situation People (SSP); User Centered Design (UCD).

### 1. INTRODUCTION

The present research was carried out to support the Interior Design of a Support House for the homeless population (PSR), adopting the guidelines of User-Centered Design (DCU). According to DECREE No. 7,053 (2009), which institutes the National Policy for the Homeless Population (PSR):

(...) the homeless population is considered to be the heterogeneous population group that has in common extreme poverty, interrupted or weakened family ties and the inexistence of regular conventional housing, and that uses public places and degraded areas as a space for

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housing and sustenance, temporarily or permanently, as well as shelter units for temporary overnight stays or as temporary housing.

In turn, the reception consists of:

(...) a process of professional intervention that incorporates human relationships. It is not limited to the act of receiving someone, but to a sequence of acts within a work process. It involves qualified social listening, with the valorization of the demand that seeks the service offered, the identification of the problem situation, in the individual but also collective scope (SANTOS, 2006, p. 58).

The definition of a Support House is also described by DECREE No. 7,053, in Article 8, as the:

Place with basic standard of quality, safety and comfort of temporary shelter network, where capacity limit, rules of operation and coexistence, accessibility, healthiness and geographical distribution of the shelter units in urban areas must be observed, respecting the right of permanence of the Homeless Population, preferably in cities or urban centers.

The strong social inclination of the Interior Design to treat the environment in a way that meets the PSR instigated the initial motivation of this project. It was also intended to prove the importance of this as a vehicle for social inclusion; even as a change in the paradigm of Interior Design (DI) and the reductionist view of its vocation, exclusively directed to the medium and high-end public. This demystification of ID allows us to glimpse its application to other audiences on the margins of society, clarifying it as a profession that can contribute to a social transformation, in this case, directed to the homeless. Throughout the research for the foundation of the interior design, the focus of this article, there was a deep reflection on the part of the authors, guided by the case studies carried out, by the interviews with the PSR, with the professionals working in these institutions. The information collected in the exploratory phase of the research instigated reflection on how DI could transform existing and disqualified spaces into places in which users could experience it, in order to feel like a home, even if temporary. In this case, it was considered that the roof, support, coexistence, assistance and psychosocial care would be preponderant for the relationships within the collective home, in which the basic needs are as important as the individuality of each one. For the Interior Project in question, it was decided to provide it for the male population, since the vast majority of the users of the



Support Houses surveyed were men. In addition, the precariousness of the existing institutions, the lack of quality and inadequacy of the configuration of the places, combined with the near absence and concern with the characteristics of these users justified the present research. In view of the above, the present article aims to present the research to support and apply corrective ergonomics to readjust, with quality and safety, a Support House in Florianópolis, Santa Catarina State, Brazil, named Casa Parangolé. In relation to the perspective of ergonomic practice, the intervention of an existing situation (VIDAL, 2003; IIDA and BUARQUE, 2016) has the purpose of correcting and framing to meet the legal requirements and improve the general conditions of Support Houses, reorganizing it in order to enable the reception and permanence with quality of the PSR.

## 2. THEORETICAL FRAMEWORK

The Support House addressed in this research is considered an establishment of Health Interest that serves the homeless, welcoming people for a maximum period of six months. The PSR, in turn, has access to these establishments through the POP<sup>1</sup> Center, in which, through a registration, it goes through a screening or filter, directing them to the Support Houses and other bodies, such as: General and Psychiatric Hospitals, Social Assistance Secretariat, among others. Currently, in Florianópolis, there are two Support Houses in operation with a capacity for approximately twenty-five people in each house, intended exclusively for homeless men. The target audience of the project was identified based on data collected at the POP Center in Florianópolis, in which it was identified that 86% of the users of the house were men, aged between 18 and 45 years old. Faced with this need, it was decided to carry out the research process and the interior design aimed at this audience.

The PSR is one in "a condition of extreme poverty, interruption or fragility of family ties and who lack regular conventional housing. They are people who inhabit public places, degraded areas and occasionally use shelters and hostels for overnight stays" (CONSTITUIÇÃO BRASILEIRA, Decr. 7053, Art. 1, 2009). By considering the humanized

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<sup>1</sup>Specialized Reference Center for the PSR: specialized service for the PSR that provides care from a multidisciplinary team (social workers and psychologists), food (breakfast, lunch and snack) and personal hygiene.

<sup>2</sup> KASPER, Andrea de Aguiar. **Discipline of Hospital Architecture. Lesson 07: Humanization in Hospital Projects and Application of Universal Design.** Didactic Material of the Hospital Design Discipline taught



character of the project, it seeks to meet the recommendations of Kasper (2015)<sup>2</sup>, which defines humanization, in the scope of Architecture and Interior Design, as follows:

It deals with the offer of spatial solutions aligned with human needs and characteristics, which tend to respect and support them at the same time. Such solutions tend to promote general well-being and safety, as well as spatial interaction, considering the actors who use the projected physical space.

The Support House intends to offer temporary shelter services in a humanized way, in accordance with what is established by the Social Assistance System. Thus, the focus of the Casa Parangolé is to support and welcome, for a predetermined period, men who are currently homeless. It offers a space that provides the necessary support to favor beneficial changes for these individuals during their stays, helping in their first steps towards a new life story and reintegration into society.

Some case studies carried out in the literature helped the choice of the project's guidelines, bringing important subsidies to the ambience of the Support House. Highlighting the La Casa<sup>3</sup> project, its contribution to the idea of a sustainable proposal<sup>4</sup> and humanized, redefining the housing proposal for the PSR, offering decent housing. The project provides permanent support accommodation with single occupancy units, providing stability and security for each tenant in their day-to-day lives. The configuration of this case study, compared to the case studies *in loco* and others at the national level, provided important subsidies to the research.

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at UNIVALI, Balneário Camboriú Campus, Santa Catarina. 2015.

<sup>3</sup> Designed by the architecture firms *Studio Twenty Seven Architecture + Leo A Daly*, located in *Washington* in 2014. The building has seven floors with a total of forty units, with a total area of more than 2700 m<sup>2</sup>. In addition to the individual units, the building has a community room and an outdoor patio.

<sup>4</sup> The highlight is the twisted (undulating) tensioned ropes that transmit to the ground floor of the house the sensations of dynamism and originality, with a scenography that allows the user sensory and spatial experiences that refer to comfort and warmth.



The project references in this research supported the definition of the concept for the setting of the Support House for the PSR, especially the outdoor installations of the Inhotim Museum Park (Minas Gerais, Brazil), with the work "Invention of Penetrable Color *Magic Square*". It proposes to the user large areas of permanence and conviviality through shapes, colors and materials, offering an additional experience for those who visit them. In turn, the *Gallery of Rope Wave* project, located in Shanghai, China, inspired the project, with its integrated spaces and use of natural materials such as rope, steel and wood, providing a much more affordable cost and environmentally friendly. The inspirations of Casa Parangolé come from Hélio Oiticica, from his artistic experiences with samba schools, with music, dance and the *interface* of his art with the simplest public, as verified in Figure 01:

**Figure 01:** The Parangolés of Hélio Oiticica



The name Parangolé came up unexpectedly, when the artist found a street sign that identified an improvised shelter, built by a "beggar", which read: "this is Parangolé". Thus, in Oiticica's idealization, Parangolé has as its main definition the inter-reaction between art and the public. Interconnected pieces are used, worn or carried, they are capes made of colored cloths, with or without words and photos, banners and flags.

**Source:** [www.faceclips.net](http://www.faceclips.net). Accessed on December 31, 2018.

The proposal of Casa Parangolé during the period of stay or permanence of the PSR is its involvement with the created environment, in which the work only fully exists when the participation of the spectator who "dresses up in the work, to make it alive", in his own body. With this, for each person there is a different work, which leads to the idea of the possibility of positive personal and psychosocial changes. Oiticica's art can also serve as a vehicle for



occupational therapy, in which users recover confidence, autonomy and productivity, favorable to their reintegration into society.

In view of the importance for Parangolé, of the direct influence of colors, on the state of mind and well-being of the users of the house, there was a concern to explain it, also, in the proposed ambiance. Its importance in *Interior Design* and possible connection with the behavior of residents within multicolored spaces is observed, permeating its mere aesthetic function. Farina (2006, p. 2), deals with the various aspects of colors in ambiance projects, stating that:

"Colors influence the human being and their effects, both physiological and psychological, intervene in people's lives creating joy or sadness, exaltation or depression, activity or passivity, heat or cold, balance or imbalance, order or disorder, etc."

Thus, the use of colors served as a vehicle for sensory stimulation, combined with the physical stimuli of the parangolé, which were made available in the environment to relieve *stress*, and in the therapies planned for the PSR. The guidelines of the DCU were also adopted in the project, in order to understand the interests and needs of the user. "Considering that users take into account the fulfillment of their expectations when choosing a particular product, user-centered design proposes the application of criteria that provide for a minimum level of stress and maximum efficiency in use" (KASPER, 2013, p. 194). In the Parangolé house, elements present in the daily life of the PSR were used, such as cardboard, rope and colors, a fact that stimulates the appropriation of the space, causing a feeling of belonging to the place. It is also noteworthy the application of NR 17 (1998) and ABNT NBR 9050 (2015), among other standards, in line with the guidelines of the DCU

### 3. METHODOLOGICAL FOUNDATIONS

The methodological structure of this research resulted mainly from the orientations of Pacheco, Pacheco Júnior and Pereira Filho (2007), Bardin (2010) and Kasper (2013), and the research method is the one that covers reasoning in order to obtain knowledge about the phenomenon under study, according to the authors cited. The applicability of the descriptive method made it possible to expand the knowledge about the constituent elements of the phenomenon, considering issues involving the description, recording, analysis and



interpretation of existing phenomena (GIL, 2008; PACHECO JÚNIOR, PEREIRA AND PEREIRA FILHO, 2007; KASPER, 2013). The exploratory research allowed to increase the familiarity with the investigated object, employing systematic procedures to achieve essentially qualitative descriptions, in order to obtain reliable information about the context, as well as to know the relationships between the elements involved (CERVO, BERVIAN and DA SILVA, 2007; MARCONI and LAKATOS, 2008; KASPER, 2013).

The qualitative nature of the research sought to analyze the complex or specific situations (RICHARDSON, 2008), especially the priorities of the Support House for the homeless, in view of the needs pointed out by the demand. It was considered about the positive and/or negative conditions, in relation to the dynamics of the case studies and references of the investigated projects, the considerations of the professionals working in some institutions, as well as the conditions of those in relation to compliance with the legislation, configuration and dimensioning. Such a condition is in line with the guidelines of the DCU. As for depth and breadth, it is classified as a case study (KASPER, 2013), as it seeks to know particular situations that surround the Support House for the PSR, especially in relation to what was previously provided.

Other research techniques used were documentary and bibliographic research in secondary sources and on-site observation, as indicated by Richardson (2008), Silva (2005) and Pacheco Júnior, Pereira and Pereira Filho (2007) as: systematic observation, with previous planning of what will be observed; non-participant observation, in which the fact was witnessed, but not participated in it; and, individual observation. Semi-structured interviews were conducted with the team of employees and residents of the visited institutions, aiming to expand the important information to the Research. The interviews were conducted using open questions focused on the object investigated, seeking to know the dynamics and configuration needs of the Support House. The records of the testimonies were made by means of a tape recorder, including the experiences about the difficult reality in which the PSR lives. They took place between October 5 and 9, 2017.

Content analysis was used for the treatment and discussion of information, according to the dictates of Campos (2004) and Bardin (2010), making it possible to list the guidelines and the concept of the project (Parangolé), which are important to meet the needs of the demand. For this, the pre-exploration phases, selection of the units of analysis, categorization and referential interpretation of the units of analysis were followed, allowing the identification of





the important elements and their meanings. Such results will be discussed in item 04 of this article.

#### 4. FINDINGS

In view of the application of research techniques including the analysis of the information obtained in the case studies, the foundation for the Model Interior Design of the Parangolé Support House was obtained, considering the necessary interventions, under the guidance of the DCU. Although this article does not have the main focus on the presentation of the project itself, but on the design process, the site of intervention (Figures 02 and 03) and the results, in spatial terms, are demonstrated in a summarized way.

**Figure 02:** Layout of the environments and interdependence and flows of Casa Parangolé.



**Source:** Own authorship (2018) based on Flor de Jesus (2017 and 2018).

As can be seen in Figures 02 and 03, from this theoretical basis it was possible to predict, with greater certainty and foundation: a) the configuration of circulations and movement spaces in the environments; b) the creation of multifunctional spaces, optimizing the use of the existing area; c) the use of materials of good quality, durability and aesthetically appropriate to the purposes of the project, but at an affordable cost; d) the use of vegetation within the project, in order to humanize and reduce the stress of the residents; e) the elaboration of a needs program focused on the DCU, carrying out good practices aimed at sustainable actions, including compliance with the legislation.

• **01 and 02 - Gallery and Living** ( $A = 16.59\text{m}^2$ ): Space located at the entrance of the Support House, divided into two sectors: gallery, with a hollow bookcase to exhibit objects made by the residents, providing extra income through their sales. The Living Room was designed to optimize the space located below the hollow staircase, and can be used by the target audience, as well as visitors. In front of the living room there is a corridor ( $A = 7.67\text{m}^2$ ) and a





panel with exclusive frames for users to deposit photos, thus being able to appropriate the house (sense of belonging). An atmosphere of welcome and protection was created. In these environments, it is possible to have access to the accessible toilet and the support/reception room. The decision for the lifting platform with cabin aimed at a more affordable value than an elevator, being adopted for the project, which also meets accessibility issues (ABNT NBR 9050, 2015).

• **03 and 04: Support and reception room** ( $A = 9.59\text{m}^2$ ): The location of this space was strategically designed to be close to the entrance, where professionals receive new residents, in a humanized way. This environment will also be used for the appropriate and specific treatment of each individual during their stay in the house. The paintings displayed on the walls of landscapes and plants refer, indirectly, unconsciously, to biophilia and, in turn, to well-being.

• **05 and 06: Multipurpose room** ( $A = 45.53\text{m}^2$ ): Place for meals, as well as occupational therapies. Among the therapies, there will be a partnership with a *Design Studio* that makes lamps made of cardboard. The intention of using this material was due to the fact that it has a very important meaning for these people, who, while they were on the street, used cardboard, sometimes as a mattress, sometimes as a blanket and even as a shelter, helping them to develop a type of craft, providing another income within the institution. The environment has tables and a high bench superimposed on one of them, thus offering options of varying heights that facilitate the execution of the work, determining the choice of which table to use, whether by the precision of reach that is desired, or depending on the individual who will perform it. The tensioned ropes also make up the environment, arranged in a way that is sometimes vertical, sometimes twisted, bringing a unique movement to the environment, in addition to determining the flow of circulation of the spaces.

• **07 and 08: Kitchen and stock** ( $A=13.06\text{m}^2$ ): This space will be used by the cooks to carry out the main meals, but users will also have access to make snacks or get something to drink. The walls are all painted in white, bringing an air of "order, simplicity, cleanliness" (FARINA, 2006, pg. 97). It has pictures displayed on the wall with photos of spices, bringing a home kitchen vibe.



**Figure 03:** Application of the guidelines, concept and DCU in the Interior Design of Casa Parangolé



**Source:** Own authorship (2018) based on Flor de Jesus (2017 and 2018).

Figure 03 shows some environments of the Support House, described from the application of the guidelines of the "Parangolé" concept and the DCU in design, and the colors used followed the guidelines of Farina (2006). The important guidelines and project concept were applied to meet the needs of the Interior Design of a Support House specialized in hosting the PSR, in a Humanized way.

## 5. CONCLUSION

The ergonomic correction intervention applied at the Parangolé Support House was carried out in order to readjust and humanize the living and welcoming space for residents. The Interior Design carried out, based on the research carried out, reinforces the need for the



different disciplines focused on projects, highlighting those of a social nature, to meet the specificities and diverse needs of their users. In this way, it is possible to obtain more effective results, in the case of the characteristics of reception and the permanence of the PSR, considering a Program of Needs focused on the objectives of the project.

The research techniques for obtaining and processing the data provided important design information, which allowed solutions for the appropriation of the space by the users, through a dynamic *layout*, planned in a flexible way, valuing the aesthetic and biopsychosocial functions and the performance of qualified professionals. The House intends to serve as a vehicle for the resumption of dignity, through spaces of care, appreciation, welcoming, conviviality, support and support, for a certain period, with prepared professionals. It is believed that the process that sought a basis for the Interior Model Project of the Parangolé Support House helps to increase their quality, offering a theoretical-conceptual basis for other projects, including designers and researchers in the area.

## REFERENCES

AGNER, luiz. *Ergodesigne arquitetura de informação - Trabalhando com o usuário*. 4. ed. Rio de Janeiro, RJ: Senac, 2018.

ASSOCIAÇÃO BRASILEIRA DE NORMAS TÉCNICAS. NBR 9050: Acessibilidade a edificações, mobiliário, espaços e equipamentos urbanos. 3 ed. Rio de Janeiro: ABNT, 2015. 148 p.

AZEVEDO, Murillo Nunes de. *A reconstrução humana - o outro lado da comunicação de massa*. Rio de Janeiro, RJ. Civilização Brasileira, 1971.

BARDIN, Laurence. *Análise de Conteúdo*. Trad. Luís Antero Reto e Augusto Pinheiro. Lisboa:Edições 70, 2010.

BRASIL. Política Nacional para a Inclusão Social da População em Situação de Rua. Decreto nº 7.053, de 23 de dezembro de 2009– Governo Federal – Brasília/DF. Maio de 2008.Disponível em:

<[http://www.mpsp.mp.br/portal/page/portal/cao\\_civel/acoes\\_afirmativas/Pol.Nacional-Morad.Rua.pdf](http://www.mpsp.mp.br/portal/page/portal/cao_civel/acoes_afirmativas/Pol.Nacional-Morad.Rua.pdf)>Acessado em: 07 de outubro de 2017.

BRASIL. Presidência da República - Casa Civil. Decreto nº 7.053, de 23 de dezembro de 2009 - Governo Federal – Brasília/DF. Maio de 2008. Disponível em:



<[http://www.planalto.gov.br/ccivil\\_03/\\_ato2007-2010/2009/decreto/d7053.htm](http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/decreto/d7053.htm)>Acessado em: 11 de outubro de 2017.

BROOKER, Graeme; STONE, Sally. O que é *design* de interiores?. 4. ed. São Paulo, SP: Senac, 2014.

BRITTO, Fernanda. 'La Casa' Habitação de Apoio / Studio Twenty Seven Architecture + Leo A Daly. 2012. Material retirado do site de Arquitetura Archdaily. Disponível em:<<http://www.archdaily.com.br/br/01-24504/la-casa-habitacao-de-apoio-studio-twenty-seven-architecture-mais-leo-a-daly>>Acessado em: 08 de outubro de 2017.

CAMPOS, Claudinei José Gomes. Método de Análise de Conteúdo: Ferramenta para a Análise de Dados Qualitativos no Campo da Saúde. Revista Brasileira de Enfermagem. Brasília (DF) 2004 set/out;57(5):611-4. Disponível em:  
<<http://www.scielo.br/pdf/reben/v57n5/a19v57n5.pdf>> Acesso em: 12 de novembro de 2018.

CERVO, Amado Luiz; BERVIAN, Pedro Alcino; SILVA, Roberto da. Metodologia científica. ed. São Paulo (SP): Pearson Prentice Hall, 2007. 162p.

Diário Catarinense. Frio na Pele. 2013. Material retirado do site Clic RBS. Disponível em:  
<<http://osoldiario.clicrbs.com.br/sc/noticia/2013/07/abrigo-para-moradores-de-rua-em-florianopolis-acolhe-170-no-fim-de-semana-4208055.html>>Acessado em: 21 de setembro de 2017.

FARINA, Modesto. Psicodinâmica das cores em comunicação. São Paulo: Edgard Blucher. 2006.

FLOR DE JESUS, Gizelli. Projeto de Interiores da Casa Parangolé. 2017. (Trabalho de Conclusão do Curso de *Design* de Interiores). Curso de Tecnologia em *Design* de Interiores. Universidade do Vale do Itajaí. Florianópolis.

GIL, Antônio Carlos. Métodos e técnicas de pesquisa social. 6.ed São Paulo: Atlas, 2008. XVI, 200p.

IIDA, Itiro; BUARQUE, Lia. Ergonomia: Projeto e Produção. 3. ed. rev. e ampl. São Paulo (SP): Blucher, 2016. 850 p.

KASPER, Andrea de Aguiar. Material Teórico da disciplina de Seminários de Projetos para a Construção do Caderno de Fundamentação Teórico – Metodológico em *Design* de Interiores. Curso de *Design* de Interiores da Universidade do Vale do Itajaí. Florianópolis. 2017.



KEPAH, Flor. Florianópolis, SC. 2017. Disponível em: <https://florkepah.wordpress.com/>>Acessado em: 10 de dezembro de 2018.

KLAUMANN, Alexandre da Rocha. Moradores de rua – um enfoque histórico e socioassistencial da população em situação de rua no Brasil: A realidade do centro POP de Rio do Sul/SC. Artigo (Pós-Graduação na UNIDAVI no polo de Ituporanga/SC). Disponível em: <http://www.uniedu.sed.sc.gov.br/wp-content/uploads/2016/02/Alexandre-da-Rocha-Klaumann.pdf>>Acessado em: 05 de setembro de 2017.

KULPA,C.C.; PINHEIRO,E.T.; SILVA,R.P. A influencia das cores na usabilidade de interfaces através do Design centrado no comportamento cultural do usuário. Artigo elaborado para 5 Eba - Encontro Brasileiro de arquitetura de informação. Universidade do Rio Grande do Sul. Disponível em: <http://periodicos.ufpb.br/index.php/pgc/article/viewFile/10795/6086>> Acessado em: 29 de dezembro de 2018.

PACHECO JÚNIOR, Waldemar; PEREIRA, Vera Lúcia Duarte do Valle; PEREIRA FILHO, Hyppólito do Valle. Pesquisa Científica sem Tropeços: Abordagem Sistêmica. São Paulo: Atlas. 2007. 129p.

RICHARDSON, Roberto Jarry. Pesquisa Social. Métodos y Técnicas. São Paulo: Atlas, 2008. SABATER, Txatxo;

SANTOS. E.T. O acolhimento como um processo de intervenção do Serviço Social junto a mulheres em situação de violência. Trabalho de Conclusão de Curso. Universidade Federal de Santa Catarina. Departamento de Serviço Social. 2006.

SANTOS, Paula; PEREIRA, Tatiana. Historiando a População em Situação de Rua. 2013. Material elaborado para curso a distância. Disponível em: [http://portalsocial.sedsdh.pe.gov.br/sigas/suasrh/arquivos/2013/modulo08/recife3/historiando\\_a\\_populacao\\_em\\_situacao\\_de\\_rua.pdf](http://portalsocial.sedsdh.pe.gov.br/sigas/suasrh/arquivos/2013/modulo08/recife3/historiando_a_populacao_em_situacao_de_rua.pdf)>Acessado em: 04 de setembro de 2017.

SILVA, Maria Lucia Lopes. Trabalho e população em situação de rua no Brasil. São Paulo, SP:Cortez, 2009.

VIDAL, Mario Cesar. Introdução à Ergonomia. Curso de Especialização em Ergonomia Contemporânea do Rio de Janeiro (Pós-Graduação Lato Sensu). Fundação COPPETEC. Grupo de Ergonomia e Novas Tecnologias. 2003. Disponível em: <http://www.ergonomia.ufpr.br/Introducao%20a%20Ergonomia%20Vidal%20CESERG.pdf>> . Acesso em 08 de dez de 2014.

