

# The Joyful Aging Club: An Example of Universal Design Practice on Architectural and Urban Settings

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**Abstract.** Universal Design is a very simple idea that is based on complex decisions and it involves user satisfaction during performance of activities and socially inclusive interaction. Generally, the design guidelines for application in architecture requires that both students and professionals explore their imagination about the situations in which the design of a certain building becomes more pleasant and inviting than simply accessible to the needs of people with permanent and temporary disabilities. In this paper, the aim is to discuss peculiar aspects in the design of a three storey building that make it special. The result of technical solutions create environments that are not restricted to the boundaries of a site. It also encompasses the street, the crossing, the corner square and traffic signals and marks beside some accessible parking areas. The building design is an academic exploration of potential usage to an actual site. It belongs to an institution for social network of people aging above sixty-five year old.

**Keywords.** Universal Design practice, Interactive kiosks, Universal accessibility, Accessible Building and urban surroundings, Social Club of aged people

## 1. Introduction

The Joyful Aging Club - JA Club (Centro de Convivência da Terceira Idade Turminha Alegre) is an institution that fosters the development of social network for people who are financially stranded while lacking family ties in their age of sixty years or above. It is a traditional place for those customers who live nearby the central area of Belo Horizonte. The non-profit institution depends on public funding and donations to survive. During decades, the JA Club managed to promote cultural events, parties, and develop social and occupational therapeutic activities for club customers often during times of the year the weather was friendly to accommodate open air activities on site and outdoors. However, the building needed maintenance repairs and it could no longer provide enough room to new demands of social projects.

The president of the JA Club and her administration staff had expected the ADAPTSE laboratory for research on Universal Design and accessibility could develop the architectural studies that would help them register formal applications for construction investment from international donations and public funding.

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After the technical documents were completed, the ADAPTSE Laboratory at UFMG started off to work voluntarily in additional tasks that were beyond the JA Club's demands. Since the building design was part of an educational process, it was important that ADAPTSE staff could explore all possibilities that demonstrate the practice of Universal Design principles even in circumstances that would require special attention of city officials and legislators to change urban characteristics around the side and nearby crossings. Therefore, the final stage of the development for the JA Club building was intentionally conceived as academic experiments. Depending on the dissemination of the design ideas, maybe a more comprehensive understanding about full accessibility resources from the Universal Design perspective will allow future improvement in city regulations.

The following ideas are related to the design proposal for the JA Club's new building. This paper presents the description of solutions as that refers to the practice of Universal Design principles.

## 2. Powerful Relationships May Exist Between Pairs of the Universal Design Principles Applied to Spaces, Structure and Urban Settings of the JA Club

### 2.1. *Adaptability and users' power to make choices work together to shape flexibility in use*

Environmental resources that are differentiated from surroundings and well integrated to form a single unit allow free choices for the most convenient way to use by people with different skills and characteristics, enabling rich and diverse experiences over the place (see Figure 1).



**Figure 1.** Idea: A parallel comparison of two potential uses for the main social area of the building

Description: The first picture shows a van parked outside a classroom where there are about nine double seat tables. Some of them are occupied by people who give attention to a presenter on stage. The second picture shows the same room. However, the place is filled with tables of different types and sizes. There are musicians on stage, and people enjoy the party while dancing or chatting or just watching the show.

A flexible space allows various activities and spatial arrangements. They can be used in many ways and for different purposes, such as gatherings, celebrations or work.

In a garage or a balcony, tables of different size and shape serve groups, pairs or couples, and there is enough room for energetic dance, class, talk, or still contemplation. In flexible arrangements of certain space, users act and respond to the best settings of environments.

## 2.2. Users' power to make choices and spontaneous actions fit together to as equitable use

Inclusive practices occur when there is no prejudice, and spaces can be used by all people regardless of their characteristics or abilities (see Figure 2). Mutual contact and social interactions reinforce interdependence and socialization among individuals who share experiences without segregation under arbitrary circumstances.



**Figure 2.** Idea: A parallel comparison of two areas for social interaction on the street square and during exercises on terrace

Description: The first picture shows a pedestrian crosswalk that leads to gardens and seats on an urban square. A man waits the sign to cross the street while there are other people relaxing on the square seats. The second picture shows a building terrace where there is a stretch bed and two round tables. A couple is talking while seated by a table, a woman do some physical work and the another one watches her. Through the glazed doors one may see other people doing massage, yoga and exercises.

Accessible environments allow everybody to experience places spontaneously at full exploration of potential use of available resources. Whether indoors or outdoors, the universally designed environment ensures equal opportunity for each one to be and do the best and most enjoyable in life that is possible for oneself and for all others.

## 2.3. Users' spontaneous actions and environmental legibility mean simple and intuitive use

The environmental functions should be self-explanatory for immediate perception, welcoming people's spontaneous reactions. Through combined alternatives for use, environments offer resources to the user regardless of abilities who may control the conditions for ongoing activities (see Figure 3).

A wall edge becomes a seat; a table and chairs provide an opportunity to talk, exchange; the free space next to the lawn and shaded area allow everyone in the group to enjoy happiness in common, a simple form of leisure.

The arrival gate of the sidewalk and the entrance door when aligned on the same axle inform the route of travel to visitors and provide a welcome message: come up here and feel comfortable as if you were at home.



**Figure 3.** Idea: A parallel comparison of two sets of activities in which people are having fun under the tree and pedestrians pass by the main entrance of the building while an old man opens the front gate.

Description: The first picture shows grown-ups and children gathered around the shade of trees. Some are sitting on chairs or benches at the edge of planters. Others are standing and watching children play with a dog. The second picture shows the outdoor area of the building from street through the fencing, walls and open gate. People pass by on the sidewalk while the old man opens the gate and faces the tactile map that models the building plan. The sidewalk and the main entrance include a tactile paving that directs users to the map and the front door.

*2.4. Environmental legibility and friendly interfaces best explain use of perceptible information*

Built environments have multiple sources of perceptible references for wayfinding in space through use of shapes with colour contrast, light, sound and texture. These resources, used as complementary to architecture, provide a harmonious interaction between the user and the environment (see Figure 4).

Controls, knobs, bars, locks, all have foreground colours, features, shapes, and textures that contrast with nearby background. So, they are inviting and make clear for everyone about use, purpose and function any time and whatever environmental conditions.



**Figure 4.** Idea: A parallel comparison of two important modes of perception. At the entrance gate, there are coloured bars. At the street, planters and tactile stripes make crosswalk safe.

Description: The first picture shows the old man with a cane leaving the building outdoor area. This time, the scene highlights the colour of bars that allow the user to open the gate. The second picture shows an old couple using the street crosswalk. They are heading to the square area where there are seats and gardens.

Flowerbeds that are carefully positioned next to crosswalks communicate where the right place is to cross the street; also, they inhibit pedestrian crossing in inappropriate or unsafe places.

*2.5. Friendly interfaces at human scale determines size and space for approach and use*

Design elements in the environment should contain dimensions and shape to suit all human profiles and skills. Any instruments and controls must be activated through direct and simple movements of the body within compatible spaces (see Figure 5).

Furniture evenly distributed in places with varying heights allow use with satisfaction by people with common needs but unique characteristics and diverse skills.



**Figure 5.** Idea: A parallel comparison of two scenes about user interfaces in built environments. The small shops are roomy enough to let people reach and see things in many shelves.

Description: The first picture shows from a high standpoint two people in a shop. One of them is a standing woman who reaches some products on a shelf. The other one is a man in his wheelchair who does the same. The second picture includes a couple of children who talk to the attendant at a small cafeteria. The counter is low height and the children can easily see food on display. A standing woman watches the situation and provides some reference about the scale of furniture.

Architectural spaces offer ease of use when their features are at hand, at sight, and under attention of users. That lets them provide comfort, security, and consequently, reduces fatigue and wear by strenuous physical efforts.

*2.6. Human scale, safety and reduction of stressful agents are simply low physical effort*

Efficient and comfortable spaces provide safety along with minimal chances of causing user fatigue and accidents (see Figure 6). The environmental features maximize efficiency of little efforts and minimize wobbly or repetitive actions.

Reserved parking spaces close to the entrances reduce fatigue caused by illogical movements on vertical path. Landings should be in resting areas where there is potential for social interaction. That makes the way become more pleasant and convenient. Each spot accommodates the most appropriate solution.





**Figure 6.** Idea: A parallel comparison of two scenes that stress on space and movement. The large sidewalk includes an accessible and safe parking area; the bathroom is large for easy transfers

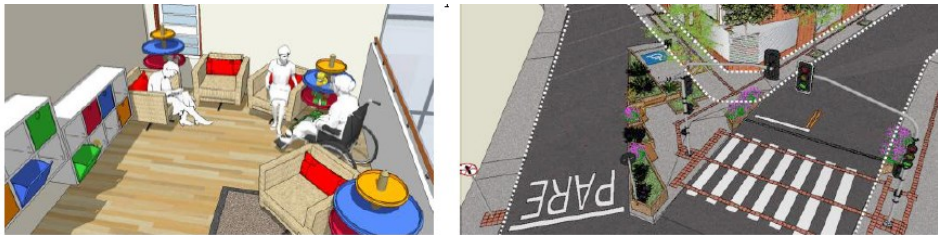
Description: The first picture shows a person on a wheelchair accessing his car by a ramp. Next to him, a blind pedestrian with a guide dog passes by. He also taps the tactile paving with his cane. In the background a cyclist and another wheelchair user are near the square with garden. The second picture shows a person inside a small but well planned bathroom from a high standpoint. That person is transferring from her wheelchair to the bath seat. The wheelchair is left close to the shower on the left and to the toilet on the right. In front of it stands the lavatory at a corner of walls.

The facilities designed for universal use have enough space to accommodate one or more people, their props and their independent manoeuvring and positioning. Grab bars, handles, controls and anti-slip floor provide successful actions with comfort, precision and safe environment.

*2.7. Safety and environmental adaptability through reduction of stressful agents: The way to achieve tolerance for error*

Spaces designed to consider patterned features and procedures indicate consideration of potential risks of accidents that happen through lack of attention and unpredictable behaviour (see Figure 7).

Such environments include support by facilities and supervised actions. That allows healthy factors and protection against failure, injuries and damage. The effectiveness depends on constant monitoring of increased success.



**Figure 7.** A parallel comparison of two scenes about safety. The knitting classroom provides movable shelves and furniture. The street corner is pedestrian friendly.

Description: In the first picture, three ladies chat while sitting and working on handcrafts. Around them are comfortable armchairs and rotating shelves. Also, wall shelf with drawers are at reach. The shelves and drawers are colourful. In the second picture, the urban square with crosswalk next to the building is seen from a high standpoint. Dotted lines around the edge of terrain and the border of sidewalk indicate where the urban design usually determines the regular size of sidewalks and street corners.

A resourceful home place provide varied adjustments: there are drawers driven with simple oscillatory motion and furniture that can be repositioned easily, rotating shelves, and comfortable sofas with cushions and arm rests.

The extension of the width of sidewalks creates a short crossing lane at corners, which decreases the pedestrian exposure to traffic while walking across the wide street. Such idea makes both the sidewalk and crosswalk safer.

### 3. Discussion and Conclusion

The previous illustrated section demonstrated ways to explain the relationships between the seven principles of Universal Design as readers attempt to understand the characteristics of environments that are included in the design of the Joyful Aging Club. Certainly, the Universal Design principles were often considered during the design process. However, it is important to mention that the study of relationships between pairs of UD principles [2] allowed designers to free themselves from a strict interpretation of design guidelines and to look for the best framework of concepts that represent the principles as applied in the context and scale of architecture rather than product design.

The content and structure of this paper shows sentences and images in ways they are used in educational poster boards [3] to explain Universal Design principles in the context of socially inclusive environments.

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