Effect of the Application of Universal Design Principles on Interior Design of Governmental Administrative Buildings in Egypt

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Summary

Keywords: Universal Design-Accessible Design-Barrier-free Design- Resilient Design

The Governmental Administrative Buildings are considered the most important service building that require Interior Design which fulfills the performance of the services and the needs of the people whether employers, citizens, or customers regardless of age, gender or abilities. The field visit to some governmental buildings clarified that they suffer from many problems in their suitability to all categories for whom the service is offered. Some of these problems are related to Anthropometric Standards while others are related to the Ergonomic Standards which may be suitable to the capabilities of a class and not suitable to the other.

The problem of the research:

is that Interior Design of Governmental Administrative Buildings in Egypt does not suit the abilities of all different groups in motion or in audio, visual or verbal abilities. This negatively affects the flexibility of the job performance**.**

The research aims to

identify the principles of the Universal design that can be applied to Interior Design of the Egyptian administrative buildings in Egypt and then introduce suggestions to apply these principles to suit the abilities of all groups from citizens or customers and employees.

The hypotheses of the research are:

the application of the principles of the Universal Design to Interior Design of the Egyptian Administrative Buildings to suit the abilities of all different categories of employees and customers guarantee the improvement and flexibility of the job performance of the service provided to them.

The importance of the research is

in supporting awareness of the value of the application of Universal Design in Interior Design of the Egyptian Administrative Buildings in Egypt by providing successful practical examples of how to implement it and encouraging its adoption in Egypt to cope with the Universal progress in design and its impact on the flexibility of job performance**.**

The research thus, followed the analytical descriptive method and was limited to the interior design of the work areas of the Egyptian Administrative building.

The research included the following:

A historical introduction to the Universal Design, which resulted in:

First: Definition of the Universal Design:

IT is the design of all products and the built environment to be aesthetic and usable to the maximum extent possible by everyone, regardless of age, ability or position in life. The concept of "accessibility" was used to make use of the design for persons with disabilities and the overall design emerged from the "Barrier-Free Design" concept as a team of experts at the University of North Carolina issued a Universal Design Principles Guide in 1997. The basic performance requirements for the overall design were defined as accessible design for all categories.

Second: Definition of the global comprehensive international reference design:

It is the design of building, understanding and using the environment to the maximum extent possible by all people regardless of age, size, ability or disability to meet the needs of all people as it is not designed especially for the benefit of a minority of people. If the environment is comfortable, accessible and usable, it will certainly benefit everyone. By taking into account the diverse needs and abilities of all people during the design process.

It will meet the needs of all of them. To put it simply, Universal Design focuses firstly on the possibility and accessibility of the highest functional performance and other dimensions such as social systems and communications within the environment.

Universal Design is a Resilient Design with a dynamic target that fits a variety of abilities and tries to make the environment functional and flexible to suit the diverse abilities of all categories, thereby encouraging all members of the community to achieve their goals.

Third: Workplace Design for easy access to the highest functional performance:

The design input should include work on Ergonomic studies, preventive maintenance and safety, precise identification of work methods, value engineering, quality management and continuous improvement of government building and enterprise interface as a result of employees' interaction with machines and processes for easier performance.

Fourth: Clarifying what is meant by accessibility and the advantages of realizing accessibility.

Fifth: characteristics and advantages of Universal Design:

it helps everyone to meet the needs of the largest number of users, including old people, pregnant women, children and special needs groups.

Sixth: Advantages of using Universal Design in Interior Design:

Universal Design is not just a new design trend but it makes the concept of design more comprehensive as it takes into consideration the needs of all categories and personal taste. It can be done by any designer and applies to all people and categories, regardless of age, size, ability or disability. As the product designed globally is the goal and the global design is the process.

Seventh: The objectives of the Universal Interior Design of the Governmental Administrative building are based on:

A - Disability is not a special case for a few people. B-It is normal and affects most of us in part of our life. C-If the design works well for people with disabilities, it works better for everyone. D- The aesthetics are compatible with the usability. E- Suitability of various sizes of the human body. F- Comfort: avoids an environment that requires a lot of effort. G-Awareness: use diverse media to communicate information effectively. H- Understanding Environment is clear, unambiguous and intuitive usage. I-Promoting human health and prevent infection. J- Social integration: Ensuring equality of all. K-Customization: Allow people to customize their experience. L- Cultural relevance: respecting for the context of any design project.

Eighth: Universal Design Principles:

Formulated in 1997 according to the NCSU Global Design Center: They can be applied to guide the design process and consumers to the characteristics of the most usable products and environments. "The design is required to achieve the following principles: Fair use, Flexibility in use, Simple and intuitive use, concrete information, fault tolerance, low physical effort, size and space suitable for use, design suitable for those with special abilities and the concept of "BARRIER –FREE".

Ninth: A proposal to apply the Universal Design to the interior design of the Governmental Administrative Building in Egypt and present two axes:

The first axis: the proposal of applying the principles of global design to the Interior Design of the Governmental Administrative Building in Egypt:

Principle 1: Fair use: Design is usable for people with diverse abilities and categories in an ideal, safe and comfortable manner

Principle 2: Flexibility in use: By making the environment responsive, simple and using only one hand. A variety of preferences, individual abilities, tastes and possibilities are taken into account and amenities are at hand.

Principle 3: Universal Design is simple, easy and intuitive. It should be easy to understand the purpose of each advantage of the design and how to use it, regardless of the user's experience, language skills or current interests.

Principle 4: Concrete Information: Design should convey the necessary information to the user effectively, regardless of his/ her sensory abilities in a variety of communication techniques such as writing and visual, verbal and tactile signals.

It is highly recommended here to provide a center in the Governmental Administrative Building that allows visitors to choose to listen to or read descriptions according to their requirements and what suit the while providing instructions that offer spoken and visual information.

Principle 5: Tolerance of error: The design aims to reduce risks and adverse consequences and to provide clear warnings against any unintended actions of any user so that safety is included in the design.

Principle 6: Exerting the least physical effort when using the design: such as the use of automatic doors with lever handles: providing ease of use and movement inside the building

for the users of wheelchairs and those who carry things with their hands while entering the building.

Principle 7: Providing sufficient space and size for use: to enable anyone to use it, regardless of the size, position or movement of the user's body.

Principle 8: The Interior Universal Design of the Building commensurate with the special abilities persons as primary users: In this case, Interior Design is modified to the maximum degree so that it is free from obstacles so that it can be used by people with special sensory abilities (audio, visual, verbal or physically.

The second axis: the proposal to apply the elements of the Universal Design to Interior Design of the Governmental Buildings as follows:

First: Governmental Building Design considerations: Interior Design and furnishing should match the purpose of the function and the needs of the building and the employees for the job performance. It should develop the open design based on the activity according to the global design idea, with the provision of closed offices for specific work needs privacy, multi-use of the same building for periods on the same day , mainstream the application of computer technology to manage records, information, registration and numbering of all official government documents , providing environmental control systems for ventilation, lighting, sound and Providing IT / Wi-Fi communication systems, applying principles of sustainability of energy and water management, waste treatment and recycling.

Second: The functional components of the Governmental Administrative Building: The interior space consists of a group of internal functional areas common to the Governmental Buildings in Egypt: the entrance area , the front reception area for the citizens , the security office , and work areas which have the area for the employees , big courts for individual work of sectors and departments managers and directors , meeting and conference rooms , rest rooms or entertainment rooms, rooms for services and facilities and rooms for office tools and records for the building. Also there are the staff, citizens or customer's kitchen area, storage areas, leaf or tool sitting areas etc. In the circulation (movement) corridors: Flexible entry and exit, avoidance of obstacles, ease of access to services, use of public amenities and smooth entrance floor level without stairs should be considered. The building should contain more than one elevator and stairs to all floors which are suitable for all groups with special needs. Mobility slopes should provide accessible routes for all people not only with wheelchairs and walking crates. The lowest slope should be 1:12 or 1:16 and preferably 1:20.

Third: Interior Design Considerations of the Work Areas within the Governmental Building: The areas should be provided as focal points for cooperation between employees through the project and the allocation of rooms for projects and project management. This happens through: provision of short-term areas for work, provision of barrier-free walkways and slopes to ensure the mobility of wheelchairs, crutches or walkers, ensuring daylight access to individual workplaces, concentration of informal meeting areas, proper sound handling of surfaces and areas with high reaction rate as well as concentrated work areas. All work points in the design are considered to be available for use with the design of some areas to be multifunctional, providing a lounge area for staff and supplemented by the kitchen and providing toilets suitable for the number of staff men and ladies.

Security and access control: There are three levels of safe access: the public space is accessible to employees, visitors and the public without an open security presence and the security-supported area. Only employees and invited visitors reach it accompanied by work staff and area for employees only, as well as areas secured by security cards of Personal identification. The freedom of movement of employees should be considered without security access points that hinder work flow and avoiding partial barriers and freedom of vertical movement between floors through providing open stairs and elevators, and creating visual connections between the floors and securing the main doors between the customer area, computer rooms and the room of security facilities. Thus, security system for Government Building is provided and integrated with effective and flexible coverage while maintaining control system.

Results: The most important results of the research:

1- Universal Design as proposed in the present research is a design when applied which includes the needs of all ages and all categories and all abilities of various motion, visual, audio and verbal abilities.

2- The Universal Design goal should be in line with the functional performance of the achievement of the Ergonomic standards and the appropriate environmental control systems such as lighting, ventilation and acoustics. It is also aims to achieve a sense of security and safety, the dynamics of work using open premises with the identification of closed areas, the psychological comfort side to meet the needs of all Categories of all ages, technological communication and digital archiving and the principles of sustainability and recycling.

3- Universal Design principles are: fair use, flexibility in use, simple use, concrete information, fault tolerance, low physical effort, size and appropriate space for approach and use and Universal Interior Design of enterprises in a fit with special abilities and the concept of "Barrier-free"

4- Some advantages of applying these principles in Interior Design of the Governmental Administrative Buildings are: easy access to achieve the design function with the highest flexibility of functional performance and freeing the design of the obstacles and ensuring comfort for all categories with different and special abilities.

5-The success in the application of the system of Universal Design in the Governmental Administrative Buildings in Egypt depends on achieving a significant shift in the efficiency of job performance. The Universal Design can not only be applied effectively at the end of the design process and is not limited to "One-size-fits-all " is unrestricted for designers as the product designed Universal is the goal and Universal Design is the process. There is a growing need for a comprehensive Universal Design for buildings that everyone can use with their intellectual, functional or sensory abilities and achieving its best benefits or creating an innovative design rather than imitating another design or the already found one.

6-Universal Design encourages the replacement of existing discriminatory designs with comprehensive universal designs liable to be used by all categories of people.

Conclusion: The research came to the following main conclusions that:

the seven principles of the Universal Design of the Governmental Administrative Buildings in Egypt could be successfully applied according to the introduced suggestions in the research for the great benefit of all the groups of employees and customers. So, they are recommended

to be applied in all the Governmental Administrative Buildings in Egypt for the good service of all the citizens.

Recommendations: the research recommends:

A - Supporting awareness of the value of applying the principles of Universal Design in Interior Design of the Egyptian Administrative Buildings and the positive impact on improving and flexibility of job performance and saving the time and effort that existed in the Governmental Buildings.

B- Studying the experience of other countries in Interior Design of the successful Governmental Buildings and trying to apply them in Egypt.

C-The adoption of Universal Design thinking should be a condition for funding the Administrative efficiency centers of the Governmental Buildings in Egypt.

D- All the ministries of the Egyptian Government should encourage the adoption of the application of the idea of Interior Universal Design the Governmental Administrative Buildings in Egypt to keep abreast of the Universal progress in design and develop the provision of successful services to customers and citizens as a whole.

References:

El tayeb, Doaa HAmed Rashad. Awad, Abir Abd el Aziz. MAlek, Raef ben El basheer

"eetbarat el tasmeem el dakhely fe el mogtamaat el togarya bin el moftarad w el waqe"

Magalet al Emara w al Fenoun w al Elom al Insania El adad 5

1 Ltd, Reliance Foundry Co. "The History of Universal Design: Accessibility enhances the built environment for all users", (February 27, 2019)

https://www.reliance-foundry.com/blog/universal-design#gref

2 http://universaldesign.ie/What-is-Universal-Design/Definition-and-Overview

3 www.design.ncsu.edu/cud/univ_design/princ overview.htm

4 Et al, Connell,"The Principles of Universal Design" Version 2.0. Raleigh, NC: North Carolina State University, The Center for Universal Design, (1997).

5 Et al, Van Tiem, "Fundamentals of performance technology: A guide to improving people, processes, and performance". Washington, DC: International Society for Performance Improvement, (2000).

6 Bednar, Michael,http://www.adaptenv.org/index.php?option=Content&Itemid=26

7 Miller, Herman "Equal Opportunity Facilities – Designing for Universal Accommodation" , (2001).

http://www.hermanmiller.com/hm/content/research_summaries/wp_Equal_Opp_Facilities.pdf

8 http://www.microsoft.com/enable/aging/goodbusiness .aspx

9 Access , Center for Inclusive Design and Environmental "The Goals of Universal Design". April 10, 2012. (Retrieved August 31, 2017).

10 Eds, Steinfeld, Edward; Maisel, Jordana, "Universal Design: Creating Inclusive Environments". Wiley. pp. 408 pages. . (April 10, 2012).

11 http://www.artbeyondsight.org/dic/module-4-museum-access-accessible-physical-space/universal-design-principles-and-guidelines/Universal Design Principles and Guidelines

12 Government , NSW " Fitout Design Principles (Office Workplace Accommodation) - Guide" MAJOR PROJECTS, SYDNEY NSW 2000 ,2017.

13 WESTERN AUSTRALIA , GOVERNMENT OF, "Government Office Accommodation Standards",DEPARTMENT OF FINANCE, WESTERN AUSTRALIA, March 2018.

www.finance.wa.gov.au

14 Sander، Libby "Office design should focus on people, not just the work they do" Queensland,Griffith University,Australia,1/12/2014

http://theconversation.com/office-design-should-focus-on-people-not-just-the-work-they-do-33677