

## **GENDER FACTORS INFLUENCING ARCHITECTURAL DESIGN SPECIFIC FOR DISABLED**

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### **Abstract**

At the time, the tragedy development resulted out of war, terrorism, natural disasters and other crises has caused disability to be presented as a potential threat to the public. On the other side the needs of disabled people distinct indicators. This present study aims to analyze and compile a check list of gender factors influencing the architectural design specific for the disabled people. Adaptation or design or architectural redesign considering gender factors for disabled people increasing user satisfaction can also improve the operational efficiency of functional space on the structure of architectural design. The present study is done in descriptive-analytical way on the basis of library studies. After setting the initial check list based on the views of experts on gender issues related to the theory and design for the disabled people, a questionnaire consisted of four measures as a) mental visualization, perception of three-dimensional space, b) the perception of visual space, c) visualization and auditory perception d) perceived social space of twenty questions were developed. The questionnaire has been distributed and filled out in five training and rehabilitation center in the city of Tabriz with the presence of the authors among 4 percentage of users beside face to face essential explanations. The most effective parameters of gender effect on intake, mental visualization, perception of three-dimensional space were determined from the user-space. The findings of the present study can result in positive influence of disabled user satisfaction in terms of gender factors in architectural design.

**Keywords:** gender, architecture, disabled, design.

### **Introduction**

Standard environment design which is designed for the people with high physiological capabilities, the deaf, the blind and those with mobility problems causes limitations (Lang, 1983). In this manner, in order to participate the disabled in all public matters, there are factors involved which one of the most important of them is the architectural design consistent with psychological principles. In this way it is possible to pull the disabled into this space and relieve them of seclusion, isolation, depression, feelings of helplessness. Providing living conditions are of important factors in attracting disabled people in society. Paying attention to the disabled people results in their positive presence in the society and their capabilities can be used in

different parts of society. As the disabled people are a stratum of society that has been always in need for others for their daily needs, in the architectural design it must be taken into account that it is based on regulations budget rules and psychological factors such as gender impact factors which are very necessary issue. The goal is to design a suitable environment for disabled people that are understandable for them in which the approach to fundamentals of space design is in accordance with the principles of gender psychology. Therefore, in order to achieve the aim, understanding the psychological gender-specific characteristics to design their specific spaces and to use human potential of disabled people, Physical material (mass Architecture) and redefinition of architectural space performance are the criteria of action. Also in order to reach the consistency with the behavior of the environment, essential points should be taken into account which one of them is the humans biological capabilities; These abilities vary between child or adult and different genders (Lowe and Stevens, 2010; 20). In the profession of architecture and specifically in design thinking it is required to have a correct understanding of the differences in understanding issues in men and women, the way of thinking, perception and visualization environment, explain the correct form of design in architectural process.

### **1. Statement of the Problem**

The main research question is what impact the gender has on specific architectural design for disabled people in? It is important to understand that although disabled person may be different to others, but relying on the disability of the individual, not only makes no help, but adds to her problems. Disable people, usually have problems which prevents them of doing some of their activities or they may do some of these activities in another way, but most people with disabilities can also be trained so do many of life's normal activities themselves with little difference or slower than another; what a disable needs is to accept and believe in his abilities. Dealing with physically disabled person, considering his movement limitations, the other abilities should be enhanced in a way that he can compensate for the shortcomings. For example strengthening of the senses makes him more successful in dealing with environmental factors (Zarei, 2009, 44). Also paying attention to the psychological needs of disabled people is one of the forgotten cycles is architectural design in countries such as Iran, so taking this into account can be a solution for the plenty of problems in disabled peoples life in society.

Therefore, both governmental agencies and public institutions that offer a variety of services to persons with disabilities must pay extra attention to the gender issues, whether willingly or unwillingly, women and men with disabilities do not have equal access to the offered benefits (Human Rights Commission, 2002; Ss36-39).

### **2. Purpose of the Study**

- 1- Identifying effective psychological factors enhance the architectural space
- 2- Understanding gender differences in perceptions of architectural spaces

### **3. Research Questions**

1. To what extent the psychological factors are involved in the interaction between human and architectural space?
2. To breakdown the psychological needs due to gender differences, what factors should be considered?

### **4. Methodology**

This research is analyzed in a descriptive – analytic method, in such a way that on the issues related to information collecting and stating psychological reality of disabled people and their

mental and psychological needs, from descriptive method, and on the issues related to the design principles of disabled treatment spaces and their Review samples and provided feedback, the analytic method has been used.

## **5. Review of Related Literature**

Predictably, disability is not randomly distributed across the population. For example, girls and women (21.3 percent) than men (19.8 percent) were more likely to have certain disabilities. To understand this difference, it is important to recognize that women compared to men live longer. Disability rates of older men and women are getting closer that in 85 years old or more 59.3% of women and 50.2 percent of men are disables. Blacks and Native Americans have higher rates of disability compared to other groups in both women and men. Asians and Spanish men and women have fewer disabilities when comparing Native Americans, blacks and whites. Women higher than double that of men are likely to become disabled with arthritis. While men and boys, are double that of women are likely to get infected of learning disabilities or mental retardation, similar varieties are seen in other countries. In the grand Britain 20 percentage of working people are disabled (Committee of disabled people's rights, 2001) and disability rates increase by age. Women 85 years or older have higher disability rates than men, but in the United States, Asian or Asian British people have higher disability rates than the white population. In Australia, among the people under 65 years old, 15% had disabilities, and among them, 54% were male and 46% female. Like the people with disabilities in the United States and Great Britain, disabled people in Australia have more likely lower income and less education compared to the non-disabled population. They are unemployed and mostly have been socially ignored. In 14 countries of Union of Europe in the year 2000, according to statistic reports, about 13 percent of the population are still partially disabled and again women more than men are disabled (Council of Europe Disability). European Committee reports that the reason for this difference is probably related to different cultural perceptions, levels of awareness, quality and integration of disabled people in society. However, many people with disabilities in Europe are experiencing forms of exclusion by the side of society. It is difficult to obtain reliable national disability statistics out for developing countries. At the same time, it can be understood out of smaller studies that disability is distributed unequally in these countries; women compared to men are more likely to have a disability. Disability rises by age and lack of resources, inappropriate hard infrastructure and the experience of war increases the rate of disability. The lack of differences in performance between males and females during rehabilitation may be increased by the similarity in the functional and cognitive levels of acceptance between men and women (Dudkiewicz et al, 2011). Researchers, during their investigation have concluded that the issue of health is the major concern in women with disabilities (Kessler, Brown, Broman, 1981). However, it seems that women are more getting patient compared to men and are more likely to see their doctor (Leaf and Bruce, 1987). Although attention to gender differences have long history, but the topic has been neglected in basic researches in psychology. Wilhelm and vent the founder of modern psychology, regardless of individual differences paid to investigate the brain structure and cognition. He believed that mental activity is influenced by individual differences such as gender (Khosravi, 2003, 17). The differences between men and women in many environmental studies have also examined (Harrison et al, 1991; Lawton et al, 1996; Shrestha, 2000 Pain, 2001). For example, Laton and colleagues (1996) examined gender differences in the building and at the same time, Matthews (1987) studied the ability of men and women in Mapping Contract and found that there were significant differences between the two genders. (Amole, 2012, 90).

**Table1.** Theories related to gender and its relationship to design for the disabled

<b>Impact on the design for the disabled</b>	<b>Relation to disabled</b>	<b>Key points</b>	<b>Theorist</b>
Architectural visualization and understanding of mental disabilities not related to gender.	Gender does not have any effect on mental visualization.	(1) Mental activity is influenced by individual differences such as gender (Khosravi, 2003, 19-17).	<b>Wilhelm Wundet (1920)</b>
The design for the disabled, all the details and terms of the standard rules must be obeyed.	Mental imagery, as well as many other properties in the form of normal and disabled population is scattered. And has hereditary aspects.	(1) Images of women and children, more objective (2) of perceived space in women with more details (Eyed Peas, 2011, 65).	<b>Francis Galton (1882)</b>
Designed for the disabled must be considered in the psychological factors.	Socially handicapped women more vulnerable than men	(1) Women in judging the emotions and how to elicit them are stronger than men (Khosravi, 2003: 60).	<b>Edward Hall (1984)</b>
The design for the disabled have all influenced by environmental factors such as psychological, social, and cultural remains.	Environmental factors affecting the gender are the handicapped.	(1) no genuine masculine and feminine gender 2 Sex disabilities a range of psychological, social and cultural	<b>Elizabeth Badantr (1998)</b>
Architectural design patterns for the disabled for the disabled must be considered in order to build a pleasant atmosphere for their presence.	Men and women with disabilities are different from the models listed.	(1) Behavior patterns, personality, moral men and women (2) pass through along different developmental pathways (3) distinct manners and morals of women and men (Mazaheri, 2004: 16).	<b>Carol Gilligan (1982)</b>
The anatomically designed for the disabled should consider them according to their performance, space suits and design	Disabled women and men due to anatomical differences between them in terms of some activities are different in practice. But there are no gender differences in IQ	(1) The difference between and partial verbal abilities (2) the absence of any differences in general intelligence, women and men of all ages (Khosravi, 2003: 49).	<b>Mac cobby (1974)</b>
			<b>Jack Linz (1974)</b>
In particular, the design of spaces that are unique to women or men with disabilities in mind the	Disabled men and women are different physically and in body size.	(1) Understanding of the anatomical differences between men and women on gender differences.	<b>Sigmund Freud (1939)</b>

anatomical differences are in priority.			
To get benefit of Public spaces and facilities for men and women with disabilities there should be no discrimination on the community level and to use the facilities.	Gender differences between men and women with disabilities are accepted, but no one does distinguish gender difference for them.	(1) Upon the establishment of equality between men and women in terms of gender	<b>Convention Forms of Discrimination against Women ((1979</b>
Professional Development in the cause of gender discrimination between male and female architect is an architect, so that women are in the minority.	Men and women with disabilities in terms of gender and social roles are different.	(1) To know the gender as variable (2) inequality, status inequality between men and women.	<b>Feminists (1997)</b>

(Source: According to sources cited by the authors)

## 6. Theoretical Foundations

### 6.1. Gender

Gender, can be seen as an "aspects of psychological, social and cultural man and a woman." (Kessler & Macenna, 1978, 7; safari & Imanian, 2009, 18). In another words, the gender, is the characteristics of men and women in the face of social and cultural life of the community (safari & Imanian, 2009, 18). Because of differences in sexuality and gender, women and men have different needs. Through the concepts related to human rights and development in which gender-based differences are acknowledged, it should be paid to the different needs in a way that women are provided with full participation in political and social life (Mrtvs, 2003, 36; Khani, 2006, 2). In the matters related to the rehabilitation of the disabled people, gender cannot have a negative impact on the performance of rehabilitation patients. (Mizrahi et al, 2012).

### 6.2. Gender differences in perceptions

Gender differences, are the most powerful promoters of human behavior and talent. Individualistic orientation becomes evident by the imagination of the two kinds of views on this context. The first perspective underscores the gender as a set of attributes, talents or looks of conduct and to tries to understand how men and women differ in these efforts. The second set of approaches, focusing on the social processes that produce the gender, seek to explore the sexuality of women and men (safiri & Imanian, 2009, 35). in psychology, discussion of gender differences in psychology is defined in two parts, the first part contains the gender differences on biological roots and the second part is called gender differences and actually refers to the differences which are in social and cultural roots and word formation is influenced by social and cultural factors, but primarily there were no reasons for their presence (Mazaheri, 2003, 2). Accordingly, researchers have concluded that the socialization of the genders increases in female humility and courage in the socialization of boys. So boys are less tolerating women anger (Lowe & Stevens, 2010; 35). Women are more effectively processing information from their emotional brains along with the rational brain information processes from their logical region. Men, at the moment, are using one side of their brain, they are rational or emotional, but at the same time women can be both emotional and rational. Women own this mental advantage due to their combination of nature and nurture and are enjoying this. In fact, women have more

emotional intake compared to men (ibid., 43). At the same time, there are strong evidences that the difference between men and women, not only with respect to age, educational level and ability to preserve and interpret the materials tested but also it is obvious according to gender. The chart below shows the factors affecting design for the disability on the basis of gender.

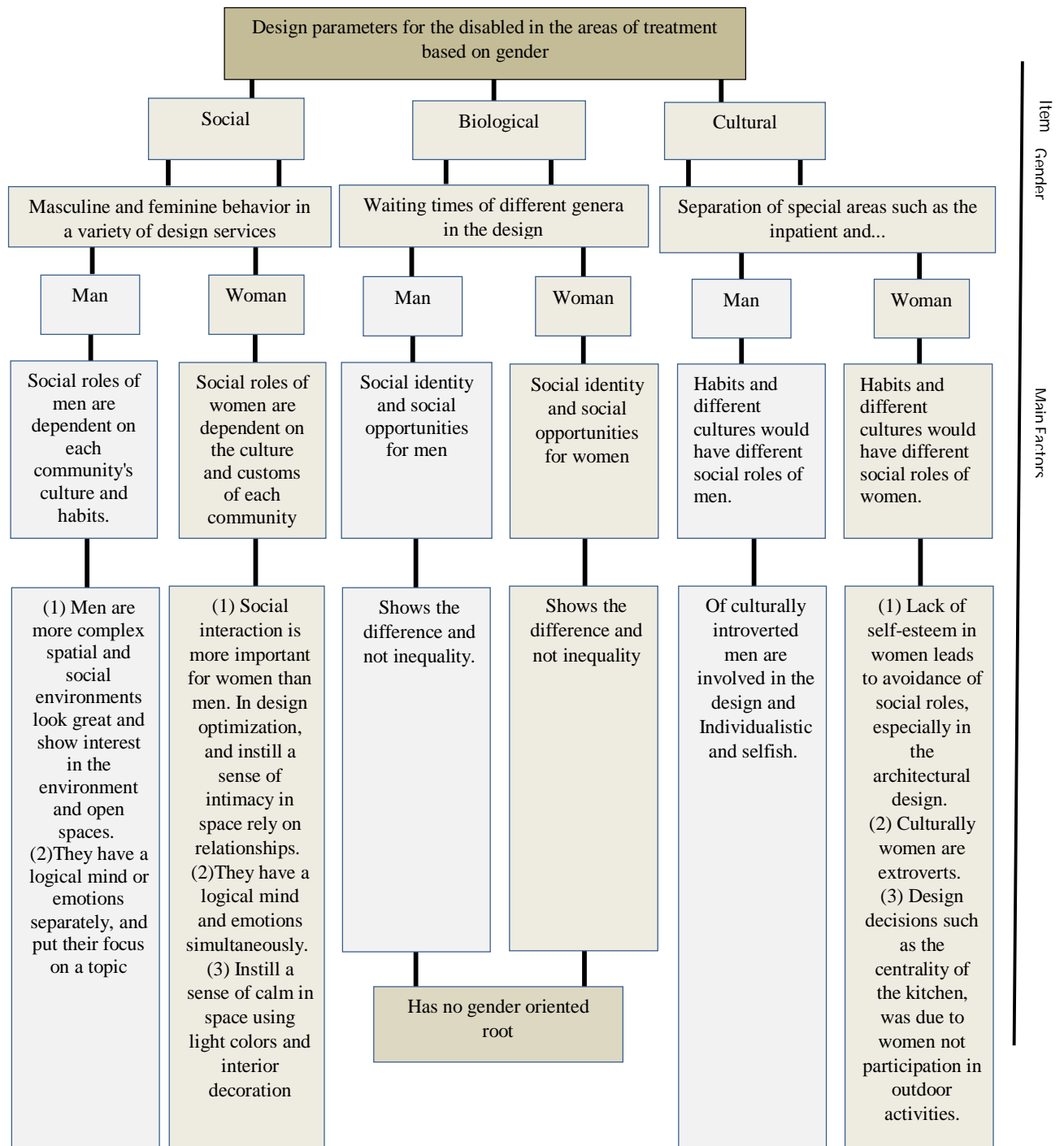


Chart 1: Impact of gender distinctions are designed for handicapped; Source: Authors

### **6.3. Influence of gender on perception (three-dimensional visual elements, social space)**

There are differences between men and women that identification of these differences may play an effective role in influencing the behavior of each part. These differences can be examined on various issues. Understanding the difference for compatibility, happiness, health, peace, personal and social life is essential. You can also learn about other aspects of the social environment and the space design and find a balance in this area by taking the mentalism into consideration the both genders are taken into account. Mutual understanding between family members and people in the community, realistic expectations, lawful enjoyment of freedom of movement and family development is a supernatural move to the destination that is accessible to all people (Hossein Zadeh, 2012;71).

#### **6.3.1. Gender and the perception of three-dimensional space.**

Scientists in the analysis of gender differences in the experience of space pointed out those boys more than girls are growing in the complex environment spaces and play in open environments. The boys are given more freedom to explore large spaces and boys play with more complex spatial toys. Also the researchers in a meta-analysis found that participation in space activities is in a close association with the improvement of performance on tests of spatial abilities (Khosravi, 2003, 58). Men and women in drawing, shapes, objects and places that are considered as two-dimensional perspective seem to have the same ability. The problem that many women face is reading and finding a way through the map. They need a three-dimensional form to find the way. Tests has indicated that men can change two dimensional images to three dimensionals in their minds but women do not have such an ability (Piz, 2011). The right frontal lobe of the brain that corresponds to the space of the brain acts is much stronger in men (Lowe & Stevens, 2010; 61). Boys relatively in visualizing spatial spaces, mechanical aptitude, math and logical reasoning are superior to girls. Girls also are reportedly superior in aesthetic elements (shapes, colors, images) capabilities verbal (defining words) skills iodine (button up, string) and this is approved (Mo'azeni et al, 2012: 28).

#### **6.3.2. Gender and the perception of visual space.**

Men and women see the same world from different perspectives. Women have slight understanding and men have overall perception. Women's perception of speed is greater, it means the on the speed and accuracy they get the matter. Based on meta-analytic approach, women are more performative compared to men (raeesi, 2001, 172). When a man looks at a shape, he sees three-dimensional objects and spatial measures. They consider objects with their spatial forms and relate them to each other. This is like putting pieces of a puzzle scattered. Many women are getting bigger picture out of objects and pay more attention to detail (Peas, 2011, 168). When the constructing a building from two-dimensional map, boys are acting faster than girls. They can measure the angles and figures more accurately and understand the alignment of the floor level. Men in fields such as architecture, chemistry, and statistics and building are good. In the tasks that require hand-eye coordination boys are actually better (ibid, 134). It can be said that women's perception of colors and sizes are considerably better than men. For example, women can ultimately identify between a ranges of colors from pink to purple, including pink, magenta, lavender, eggplant, peel purple and better understand the very subtle differences in colors while men do not belong the variety of colors and details (raeesi, 2001, 172)

### 6.3.3. Gender and perception of social space

Throughout the history there are clear differences between women's and men's activities in different cultures. This difference is greater in societies like Saudi Arabia where women are seen in veils (Baheeha1975). If gender roles are changing, as a result, interior design of houses, the openness, the relationship between the house and the street and open space design changes. Although the climate of courtyard houses still acceptable in many parts of the world, but they are turning to other forms. One of the reasons for this change is that a complete separation of the genders is not the same as it was in the former's activities. Many design decisions such as the centrality of the kitchen, is because of women's participation in activities outside the home (1976•Hayden). Ways of life can be understood through the role of people and their bases of behavior (Lang, 2011, 139). A gender-related aspects of the relationship that is caring (Branvn, 2002; Fhr, 2004). And the other is the style of communication. Deborah Tannen (1990), revealed their differences by analyzing the conversations between men and women. No association was observed at the highest reasons. Tannin is separating the understanding talking and report taking. Understanding spoken language dialogue (Debilow2011, 394). In disable people, communication plays a major role; on this basis it has been shown in a study that depressed mood among women is an important factor after the completion of PR. (Busch et al, 2014). As a result, the gender of an individual, social relations and institutions that form and meaning. Without gender it we cannot fully understand the social world; But the opposite is also true, because we cannot understand gender without understanding the social environment. With the formation of social life, gender is produced and with the production of gender, social life becomes apparent (ambassador and Imanian, 1388, 23). For example, in a study of persons with disabilities, are significant gender differences in access to VR (employment services), and health insurance coverage.

Table 2: Parameters of the impact of gender on the perception of architectural space

Two-dimensional perception, aesthetics, verbal ability, Key Skills, reactions	woman	Mental visualization, perception of three-dimensional space.	Influence of gender on the perception of architectural space
Perception of three-dimensional (spatial), mechanical aptitude, mathematical and logical reasoning	man		
Perceived slight, high-speed visual perception, color-blindness Stats down the broad vision, color perception	woman	Perception of visual elements	
The general perception, face recognition and face recognition, eye-hand coordination and enable the construction of high color- blindness statistics, poor color perception	man		
Auditory perception, the tone of the distortion is not sound without the ability to avoid detection	woman	Visualization and auditory perception	
Auditory perception of low bass tones for a clear, is perceived by a precise navigation	man		
Social relations are delicate and compassionate, understanding speech, focused on several things at the same time, tested and validated prospecting words	woman	Perceived social space	
Social relations and self-centered person, talk to a report focused on one task at a time, the words strong, authoritative power represents	man		



## **Conclusion**

provided description, suggests a significant relationship between gender and the perception of visual space, and also a significant difference between the perceptions of the visual elements varies that all of the results is in homogeneity with Scientific and theoretical issues in the field of visual elements of space and perception by women and men and the effective elements on the field of understanding. Also the presence of a significant correlation between visual perception of space, and the difference between the ratings given to each of the visual elements and Significant influence of the behavior of others in understanding the nature of architectural space and the high correlation among the elements entails that the change in any of these elements and criterias can influence the quality and acceptability of space for its users in The design architecture. So we can take these results as benchmarks to increase the acceptability of the design space used by architects. Since in recent years the expectations and behavior of users in the architecture and design is of even greater importance and the roles of men and women in society as well as the employer, the user or designer has been in the profession of architecture and urbanism it is expected to pay more attention to the perceptual characteristics of women in the workplace and spaces designed to increase the effectiveness and acceptability of space. The matching process with behavioral patterns, including changes in the physical environment in order to respond to the demands and behaviors of users with regard to special circumstances such as gender, age, education and aesthetic tastes or to establish consistency between the cases and environments have been considered in the architectural profession. The general conclusion is that the process of perception, reaction and behavior of people is the most important determining factor in the design methodology.

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