

Landscape Effects of Urban Furniture Textures

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Abstract. The various materials the urban furniture objects are made of may create comfort when providing the user leisure, pleasant, dynamic or relaxing atmosphere. These materials can influence the human psychic generating various positive and negative inside conditions. Many psychologists use the virtues of materials in their therapies, the effects being carefully studied and tested. The surface texture constitutes a very important characteristic of urban furniture object materials influencing the obtaining of some physical or psycho-emotional effects. Nevertheless, the study of the texture effects is mostly ignored or neglected. As a consequence of this fact, often the textures are inadequately used, generating negative effects added to the other already existing urban pollution forms. The study aims to analyze the human perception of the furniture texture in the urban spaces and the relations with the reactions on multiple levels. The multitude of pollution forms created by the presence of inadequate urban furniture in the city areas is an alarming sign for the landscape designers. There are many patterns that can create discomfort and rejection reactions to the users. The tendency is to obtain more resistive materials but, at the same time, lighter materials, more flexible and more aesthetic, at moderate costs. The study aims as final result to guide the use of the natural and artificial textures in order to create appropriate, attractive and healthy multifunctional furniture for our urban spaces. The researches in the field of material texture represent a source of technological evolution in the field of urban furniture.

Keywords: urban furniture, material textures, psychic regeneration, sustainability

INTRODUCTION

The urban furniture either utilitarian or decorative or symbolical should be carefully designed in order to be appropriate to various existing urban aspects in sites under development, revitalizations or rehabilitations: functional, spatial, volumetric, constructive-structural, stylistic, atmospheric, ambient aspects etc.

As historical evolution, we may notice, in time, the tendency of passing from the supremacy of symbolic and ornamental furniture to the furniture of satisfying some stringent urban necessities in present time, such as: the need of information, of circulation, of communication, of service, bad weather protections etc. The urban space offered to the city inhabitants should be flexible, multi-functional, as many possibilities as possible of choosing the urban architectural conditions and with many ways of using the ambient equipment in compliance with a high standard of life quality (Dascălu, 2006).

The various materials the urban furniture objects are made of may create comfort when providing the user leisure, pleasant, dynamic or relaxing atmosphere. These materials can influence the human psychic generating various positive and negative inside conditions. Many psychologists use the virtues of materials in their therapies, the effects being carefully studied and tested. In time, the development of technologies created, using natural or artificial elements, many composite materials such as ceramics, glass, metal, concrete, plastic, synthetic resins and so on. The surface texture constitutes a very important characteristic of

urban furniture object materials influencing the obtaining of some physical or psycho-emotional effects (Dascălu, 2006). However, the landscape effects of the texture are in most of the cases forgotten or ignored. As a consequence of this fact, often the textures are inadequately used, generating negative effects added to the other already existing urban pollution forms.

MATERIALS AND METHODS

The texture is an extremely important feature of the materials used in manufacturing urban furniture. Nevertheless, the study of the texture effects is mostly ignored or neglected. The study aims to analyze the human perception of the furniture texture in the urban spaces and the relations with the reactions on multiple levels. The multitude of pollution forms created by the presence of inadequate urban furniture in the city areas is an alarming sign for the landscape designers. There are many patterns that can create discomfort and rejection reactions to the users. The tendency is to obtain more resistive materials but, at the same time, lighter materials, more flexible and more aesthetic, at moderate costs.

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RESULTS AND DISCUSSION

1. Perceptive process

The human perception represents an extremely complex sensorial process (Dascălu, 2011). Certain aspects of urban space are perceived through a single organ of sense, other aspects are perceived through more senses: we see colours, we hear sounds, we use our tactile, taste and olfactive senses etc.

The perception way may be objective, subjective, physical, psycho-emotional. The human perception analysis has lead to various classifications of perception types:

- According to the senses used: visual, tactile, auditive, gustative, olfactive
- According to the form of matter existence: space perception, time perception

In case of cities, the urban space perception is very important and was studied by many specialists in urban psychology. Of course, the city inhabitants perceive the space depending on the multiple personal features (Jurov, 2006), but generally, the perception of space where various urban furniture objects are placed can be:

- Two-dimensional: objects are localized according to certain coordinates defining only plane configurations: up-down, right-left; in this way, certain objects forms may be perceived but not their volume
- Three-dimensional: the objects are localized not only according to distance (near-far) but also in depth, e.g. spatially; therefore, these coordinates define the volumes of objects and the distance between them

In landscape architecture, the perception is an extremely important factor considered in designing any composition and arrangements (Dascălu, 2006; Dascălu, 2011; Jurov, 2006). The perception of outdoor architectural ambience elements – constructions, objects, materials, forms, colours, textures etc – creates various reactions with positive or negative effects on the human psychic. The balance and harmony of public spaces where the urban furniture is placed are the result of relationship of psycho-social factors with elements of aesthetic architecture

(Dascălu, 2006). Knowing the architectural ambience effects on the human being, the individual and collective existence may be optimized in the way of considerable increase of the urban comfort degree.

2. Adequation of material characteristics according to their effects

The urban furniture object relationship with built and natural landscape is very important for intensifying the value and quality of the city. By completely covering the land with concrete, asphalt and built objects, a dry micro-climate was created which damaged by pollution the urban atmosphere. The urban furniture design has nowadays, more than anytime, the role to purify the urban space from many forms of pollution (Dascălu, 2006). In relation with the urban furniture objects, the ecological elements are worth studying offering sustainability. In this respect, the materials, *surface texture*, colour, volumetric aspect and form aesthetics are details that can create a specific atmosphere, can offer new qualities to the space. Finally, by a judicious location of the site and by adjacent vegetation and water arrangements, the urban furniture can be highlighted.

The spatial placement and distribution of outside furniture objects are of great importance in projects of urban revitalization and ambientation. We may find numerous negative effects of injudicious placement, of chaotic distribution and of anesthetic, inadequate aspects or even bad taste aspects of urban furniture. These aspects generate difficulties of perception in space, disagreeable spatial sensations, visual shocks, confusion, misleading guidance, waste of time and energy, cancellation, impairing and contradicting of character or value of an urban space (Dascălu, 2011).

The adequation of outdoor furniture to urban space should be carefully correlated with the existing zonal urban functions. Here may appear various situations in which the urban furniture placement can lead to (Dascălu, 2006):

- Keeping the existing functions in the area or in the studied framework, if they are the most suitable
- Changing the existing functions that are improper to the urban frame value and to zonal needs.
- In the case of an existing multi-functionality containing unsuitable functions changing the urban space value, they will be excluded and new functions may be suggested, necessary for the area
- The suggestions of a multi-functionality in case of a urban frame with complex aspects not having but a single function

In this context, firstly, *some important characteristics of materials* should be highlighted from which may be created the urban furniture objects (Dascălu, 2006). The materials can be entirely natural, created from mixtures of natural components or from artificial components:

- The natural materials can be mostly used in historical sites, the artificial ones may be naturally integrated mostly in a modern framework
- The natural materials may confer comfort, can offer security, appertaining and historical identity feelings, the artificial ones help us to adapt to the modern space.

Let's review some effects of materials from the composition of urban furniture objects.

Natural materials or materials with natural composition: stone, wood, ceramics, glass, metal.

- The stone absorbs strains and inside agitation, induces quietness and meditation
- The wood remakes the inner forces, confers rest and calmness
- The ceramics stimulates imagination and creativity

- Glass drives away fatigue, cools down and refreshes us
- The metal confers the sensation of force and increases the psychic resistance to negative shocks
- The concrete stimulates and confers security

Artificial materials: plastic materials

- The plastic can ease assimilation of some too modern urban aspects – the draw back is related to the fact that it is easily damaged at surface and its recycling is very expensive.

Beyond the aesthetic and functional considerations, the urban furniture should have also specific qualities related to placement in the public space. The restraints, in this case, are related to climate and using of materials depending on destination and usage. In order to carry out some sustainable arrangements, materials with certain resistance characteristics should be selected:

- Resistance to ageing (behaviour to bad weather)
- Resistance to temperature variations
- Resistance to ultra violet radiations (natural colour stability)
- Resistance to corrosion
- Resistance to wear both in the case of normal usage and vandalism

In order to increase this resistance, the outside surface of materials should allow the painting and coating with various protection stuff that would be easy to maintain. In fighting against dust impregnation, mildew or graffiti cleaning, the texture should offer a high resistance to abrasion and to solvent action.

The varied and inventive design of forms is based also on material performances regarding the structural resistance, flexibility to constraints and the capability to bear well the transformations. For difficult, curved or angular shapes, usually easily molding and prefabricated materials are used such as concrete, glass or plastic materials. Actually, due to the emergence of stratified wood structures, this 100% ecologic material can be used for the most complicated and difficult shapes which are extremely resistive and flexible.

The texture characteristics related to the aspect and comfort refers to the possibility to obtain some contact surface types provided with thermal conductivity. In this respect, we can use certain materials as well as the capability of colours to influence the thermal conductivity – the dark ones absorbing the heat and the light ones refreshing.

The selection of material texture should be achieved considering also its service life not only the aesthetic aspect as well as considering its capability to be transformed. The functionality of furniture objects generates the wear of some component elements. For example, the well borders are in permanent contact with water, the waste bin covers are often handled, the horizontal surface of sitting places are permanently in contact with users and so on. In this context, the most exposed parts of the objects should be made of resistive materials, even if they have high costs (such as stainless steel, hardwood etc). For moderate costs, we can select also less durable materials but easy to replace.

The researches in the field of material texture represent a source of technological evolution in the field of urban furniture. The tendency is to obtain more resistive materials but, at the same time, lighter materials, more flexible and more aesthetic, at moderate costs.

3. Effects of material texture

The texture is an extremely important feature of the materials used in manufacturing urban furniture. Nevertheless, the texture effects are mostly ignored or neglected (Dascălu, 2006). The texture represents the constitution of visible side of urban furniture objects. The objects may have an inner structure made of natural or artificial material. Outside, this

material may remain visible, processed with various techniques, or may be covered with a finish of other material. These finishes may be in their turn made of various natural or artificial materials (rocks, wood material, ceramics, metal, concrete, glass, fabrics, plastic etc).

The processing types of surfaces differ according to material structure: polishing, grinding, chiseling, bush hammering, scrapping etc. As a result of processing techniques, various types of textures may appear: soft, hard, coarse, fine, grained, smooth, porous, compact, raw, delicate, homogenous, non-homogenous, glossy, polished, opaque, transparent etc.

The perceptive process of material texture generally takes place through visual stimuli and tactile stimuli. We call effects the reactions of users to these stimuli. These reactions are of many types:

- Gesture reactions (effects): motions, movements, stationary, touching, rejection
- Conceptual and emotional reactions (effects): joy/sadness, admiration/indifference, satisfaction/dissatisfaction, comfort/discomfort, security/insecurity, rest/dynamism, relaxation/refreshing etc.
- Reactions (effects) to conscience level: harmony, eurhythmy, identity, self-respect, self-awareness

Textures are stimuli perceived through the receptor organs of human senses. The individual experience, the personality features, education, living environment are elements hallmarking the stimuli perception. The cerebral analysis of perceived stimuli is completed by these above elements and lead to a creative synthesis. This creative synthesis of perceptions creates the well being state or comfort state. The textures may have various effects on the users:

- Raw, coarse, grained, fine: confers peace, security, optimism
- Glossy, polished, smooth: creates dynamism, refreshing and power
- Soft: generating relaxation, rest
- Hard: confers security, refreshing, stimulation

It is important to analyse the effects, advantages and disadvantages of material textures used for urban furniture. We may encounter in landscape architecture *punctual effects or complex effects activating the human being* on many ways, by multiple projecting, designs, composition means (Dascălu, 2006; Dascălu, 2011; Jurov, 2006). The activation can be effective, suggested, and emotional.

The effective activity can be created by object design. The shape, volume and texture are designed so that a transfer of attention takes place through sight movements, followed by the movement of the entire body from one object to another depending on the route offered by landscaping composition. The site can be guided to interest points or areas by successions of texture types, completed by colours, shapes and volume plays.

The suggested activation involves guidance of perception and activation of behaviour by various means, such as:

- Urge to action – possibility to write with chalk on the respective texture
- Light and shade plays created by the texture type – suggesting movement
- Optical illusions – textures in which the surrounding space is mirrored and confer the sensation of spatial expansion, opaque textures giving the illusion of space diminution
- Sensation of rest and chillness – glossy textures of cold materials
- Spatial perceptive modifications – through the fluid aspect of the texture the coldness sensation appears
- Perceptive modifications of the space – through contrasts such as full-empty, opaque-transparent, soft-hard etc

- Injudicious contrasting associations lead to visual and tactile shocks, psycho-emotional shocks.

The emotional activation addresses to the human psycho-emotional aspect. The effects that can appear by using and combining materials and textures are quite complex.

- Effects of toning, dynamizing, stimulating effect by intensifying of brightness, illumination, reflection using smooth, glossy, transparent materials; by contrasting alternation of opaque/transparent, smooth/matted textures
- Effects of stability, security, solidity are offered by hard, coarse, grained, cold materials: concrete, stone, mosaic
- Effects of relaxation, quietness, rest, meditation can be offered by soft, warm, smooth, pleasant to touch materials: wood, ceramics
- Effects of aesthetic satisfaction, generating delight, joy and optimism: harmonious combination of textures with the context; transmission of positive energies by using some symbols with artistic or spiritual significances
- Effects of satisfaction or dissatisfaction through comfort or discomfort created in using various textures: especially in the design of sitting places, textures should be selected comfortable for rest, pleasant to the body-polished wood contact in the cold season, smooth stone or coarse stone for the warm season

The texture plays a very important role in creating effects mainly *by the finesse of design details* (Dascălu, 2006). For example, the texture can influence the perception of time flow by higher flow rate of water on a smooth surface, compared to an uneven surface – a water flow on a coarser surface should slow down the water movement and should induce a perception of a slower passing of time

- The surface unevenness and roughness in water arrangements produce also certain sounds, a certain sound ambience. The change of texture and/or material on/by the water flows modifies the produced sound – this may suggest a tumultuous waterfall or the smooth flow of a river
- The effects of water and light can be highlighted by the glossy textures of the material used in constructing a basin or a decorative fountain. The light and colour reflections on the glossy surface confer the sensation of mirror, spatial expansion, refreshes and cheers up. A matted texture and a dark colour of the basin bottom can create profoundness, mystery and quietness.
- From a thermal point of view, the correct selection of the material and the roughness type influence the comfort of resting places. There are warm and cold materials. The texture can intensify or diminish the warmth and coolness sensation. Although the material is the same, we may seem colder a sitting place made of polished stone than if it would be made of coarse surface stone.
- In the case of combinations of materials used in certain stylistic situations, it is better to be manufactured from materials with textures suggesting the same historical époque. For example, a bench with a wrought iron frame in Art Nouveau style can not have the countertops made of plastic material, and in case the wood is used, it should be finished in the same historical style.
- In case of glass used in lighting units, with the help of texture of the transparent and semi-transparent side, depending also on the selected colour, special effects can be created.

The light effects create suggestions with various spatial perceptive modifications, according to the glass texture through which the artificial light penetrates. The glass can be clear, translucent or blushed, thicker or thinner, and the outside texture can be glossy or in

various degrees of roughness. The beveled processing can create spectacular reflections. The effects vary from intimacy and mystery to an energizing atmosphere.

- Guidance of natural or artificial light on certain surfaces of surrounding furniture objects constitute a special technique of spatial designing through which complex effects are achieved due to the textures of respective surfaces
- The decorative walls with multiple landscaping functions – from suggesting some spatial delimitation till offering rest within some intimate niches – have a special occasion of using some spectacular materials and textures. These can create a historical or modern atmosphere or can generate a subtle ambience, either rustic/picturesque or of a high aesthetic finesse. Their resistance structure may be of concrete, brickwork, stone, metal, wood or new composite materials (containing glass fibre, plastic materials, and synthetic resins and so on). The structure material can be left out apparent, raw or processed or can be wrapped in various finishes. A raw, coarse, grained texture will generate effects of spatial contraction and a fine, glossy, beveled texture will create spatial expansion modifying the visual perception.
- Another issue is the bringing of materials to the age of existing historical sites, in works of restoration and rehabilitation. The modern techniques can achieve various textures imitating very well the time stamp: the stamped concrete can imitate the shaped stone, various procedures of antiquisation of wood and stone may suggest very old historical stages.
- The wrapping of horizontal surfaces of pedestrian routes, either from parks or street is problematic regarding the selection of their materials and textures. In this case, we have to consider the measures imposed by *people safety* in traffic. The pavement materials should have skid-proof textures in order to avoid the sliding accidents during wet weather. The paving solutions should be selected according to traffic flow, dimension and slope of land, aesthetical and economical criteria. The texture influences *the speed of pedestrian traffic*: the slabs with coarse surface or gravel determine slow speed and in this case, the details of landscaping composition – such as vegetal arrangements and water plays – are in forefront, in the attention of pedestrians.

If the surface texture covering the alleys is decorative, it can attract the pedestrian to certain areas.

The texture making is an attribute of the professional who knows the properties of the material used its behaviour to various outdoor factors as well as the creation methods and possibilities.

CONCLUSIONS

Because the study, designing and making of textures suitable for urban furniture object surfaces, is a scrupulous operation, most often it is avoided, neglected and ignored. In order to obtain some beneficial effects on inhabitants in the landscaping arranged areas, it should focus not only on texture adequation but also of all elements involved in design and spatial localization of urban furniture: arrangement in site, functionality, human scale, plastic aspect, volumetry, nature of materials, colour, light and so on (Dascălu, 2006).

The effect of using these morphological elements can be anticipated only through a careful research, by psycho-urbanistic studies. If the conditions imposed by the existing urban frame are not observed, the objects will have a negative effect with consequences on the physical and mental health of the inhabitants. In this case, the objects may be rejected by the

city inhabitants, can be passed by or even damaged. If adequation is judiciously carried out, these objects should attract, should be mostly used, and should offer magnetism and value to the entire area and to the whole city. In order to select the material type – natural or artificial – it is necessary to have good taste, aesthetic sense, and a detailed knowledge of various properties of materials, to know their behaviour to environment factors and last but not least knowledge of culture and tradition in the action areas.

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