The Evaluation of Environmental Quality criteria in Urban Design Using Citizens' Cognitive Characteristics; (Case Study: Tehran Neighborhoods)[1]

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Abstract

The problem which has been the focus of city constructors and architectures since the beginning of citizenship life is the issue of the nature of environmental quality. This study, with a review of explaining paradigms of environmental quality and by reliance on basic works, has assumed the question of nature of environmental quality an interdisciplinary concept (civic construction, sociology, psychology) and is in seek of explaining perceptive quality factors from citizens' perspective. Since the nature of this study is multidimensional and understanding of its different aspects and answering of its relevant questions bounds researcher both to test present theories and to understand mental world of his or her subjects, therefore, synthetic approach has been applied for methodology of it. It should be mentioned that Delphi method has been applied so as to obtain different indices and factors of the study. To determine the unit of sampling, multiple-stage clustering sampling method has been used in a way that between 22 regions of Tehran municipality, based on their development, first 6 regions were selected and in the next stage all the local states of those 6 regions were listed and then six local states were randomly selected. Size of the sample of this study is 200 persons. The results show that most of the perceptive factors derived from qualitative section of the research conform to factors derived from quantitative section and questionnaire. In other words factors derived from qualitative section are the same as those derived from quantitative factors. The significant point to notice in this section is that some of the derived factors from this section couldn't be categorized by previous theories but rather they belong to the research community of this study (i.e. local states of Tehran). Thus we can state that the total perceptive criteria of environmental quality of these local states are as follows: legibility, place atmosphere, permeability, peace, tranquility, liveliness, sensational rapture, time sense, civil justice, security, human standard, sociability.

Key Words: *environmental quality, perception, legibility, sense of place, liveliness, security*

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Introduction

Setting goals in domain of improving living level in cities regarding environmental quality and promotion of civic and metropolitan landscapes to an appropriate and high level with respect to perception of citizens and those users of this civic space on the one hand, and identity crisis in cities as a result of decreasing of meaning and sense of place on the other hand, are the outcomes of 20s century materialistic estimations of development. Estimations that have led more ways of communication create actually little and lower quality communications; and big cities to raise people with more limited memories and sensational experiences. Lack of quality of city spaces with regard to citizens' perception, besides displaying of significant changes in paradigm of city condition, confirms changing of humans' way of perception as a result of connection and association with place too. On the other hand, qualitative studies and researches evaluating desirability of city spaces have a high contribution to confounding of knowledge of connection of human and environment especially in sciences related to environmental psychology. These studies have obtained a developing theoretical framework and their own terminology; and were not just limited to frameworks and disciplines of environmental psychology and human and civic sociology ecology. If critic approaches in qualitative studies focus on city spaces generally and on place concept especially, place studies will in a general categorization and free of any connection with various scientific disciplines be related to "phenomenological, proving phenomenological, cognitive and aesthetic approaches". Moreover, the issue of measuring quality of environment in perception of space and place users is among the concepts related to aims of city designing knowledge; perhaps one of the most important goals of contemporary city designing might be achieving desirable quality living in cities. In any way, in this chapter we define and shed light on the concept of perception and its different levels, city spaces; city local states and domestics , place and its definitions and the issue of quality of environment and its factors.

Method

Because of the topic of the research and our facilities, survey method was considered as the most appropriate and useful method to collect respective quantitative information. Moreover theoretical framework and research hypotheses demand more using survey method for data collection and analysis. Survey is a sociological research method that involves filling of questionnaires by the respective community of research. In other word survey is often generally as a technique for gathering information in sociology or other fields or it's a general technique used in variety of levels that is applied in two cases: first when the statistical sample is large and number of respondents are high and there are similar questions, and second when we want to generalize the results to other communities. Survey is a kind of data gathering method that is done with designing a plan and as a practical guideline of description and prediction or to analyze the relations between some variables (Openhyme, 1369:9)

Theoretical foundations

Concept of perception in environment

"Environmental perception" is the process through which humans derive necessary data and mental suppositions from the environment. Moreover, perception can be considered as a purposeful process through which individual tries to receive environment emitted messages and is the result of culture and constructive values dominating human societies. Environmental perception is together with human knowledge and recognition from environment and therefore is the result of interaction of sense perception and recognition. There are several schools which have dealt with the nature of human perception from environment. Two psychological schools of behaviorism and gestalt from Itelson view-

point are thesis and antithesis. He believes that one of the most important conflicts of these two schools is that proponents of gestalt school say compound phenomena and events could not be divided to simple components; because composition and overall structure of each compound phenomenon is different from combination of its components (Mortazavi, 1369, p. 16).

The process of formation of environmental perception

The process of perception can also be conceived as movement from objectivity of environment to the subjectivity of individual. Objectivity is a part of the universe and surrounding environment, or present realities despite awareness or unawareness of them that has affected individual and his life and was perceived in the minds of individual. In the next stage the individual evaluate this mental store and gets personal meanings and feelings from it that is called subjectivity. Perception also means attention to and reconsideration of phenomena and objects and changing them into sketches or mental images. These mental images are individual's evaluation criterion of (in the stage of recognition, evaluation is done with this criterion) similar situations and finally leads to their behavior and interaction in response to that situation. Therefore it can be said that the result of individual's perception is their response or behavior. For this reason we can also consider behavior as the process of changing subjectivity of individual to objectivity. The result and product of perception process is formation of perceptive image. Perceptive image is the thing that determines behavior and type of it, i.e. human determines their type of reaction and feedback to the sender of the message based on their perceptive image.

Reception of senses………..recognition of object and its relations

Feeling……..attention……..perception

In this case the following five stages can be studied and justified:

1."Display of stimulant": the first stage is confronting of individual to stimulant or situation inducing stimulant. In this example, the above-mentioned phrase is considered as a stimulant.

2."Recording of stimulant": after intervention of stimulant, its effects will appear on sensational mechanisms of individual.

3."Inference of stimulant": this stage is the most important part of perception. A visual stimulant might be considered as distant or near, singular or as a group, unmoving or moving, short or long, active or inactive, useful or useless, safe or threatening or so. In the above-mentioned example, stimulant was specified as a string of Persian words but without any meaning.
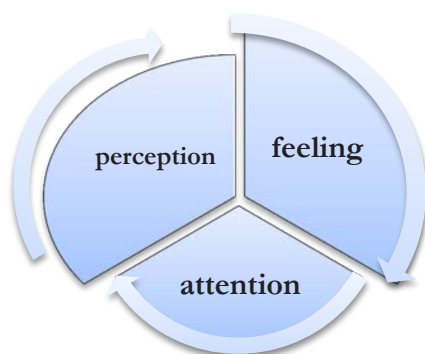
4."Returning": most of visual actions pro-

▲Fig1. Process of Formation of environmental perception; cited in Eirvani, 1381, 11th Ed.

duce stimulants that are valuable for perceptive events. For example, repeating of above example words will also give audial information or returning of head to follow respective object will bring about muscular reaction that might provide information about the speed of movement of that object or if someone stretches their hand to pick up a pencil on the table, his or her movement will provide information to distinguish relation of hand and that object by visual returning.

5."Response": if perceptive behavior follows psychological rules, it must lead to a response that is accounted for perceptive behavior of tested.

With respect to give explanations, it seems that perception occurs after some steps. Although this statement has somehow been true and perception follows some steps in reality, but if we imagine that these steps are separated from each other and there are intervals between them, we are mistaken; because without any doubt they combine and merge together. Even the separation of feeling and perception occurs more or less because of the simplicity of the study and in practice they are inseparable. In every moment we are feeling the surrounding stimulant and as the result perceiving those which are placed in the threshold of attention and critical sensation of organism and these two are formed interactively and continuously in a cycle of perception –feeling.

Standards of environmental perception

In urbanization literature this is not a very old expression. An eye over the current literature indicates that all endeavors to achieve a stable public space or a stable social place has entangled with the concept of «quality in city space». In other words, it can be said that stating of quality criteria in the views of experts is somehow the outcome of some kind of mental ideals of civic public spaces in their minds that this ideal can be conceived an inference of stability of these spaces as the meeting point of goals of city designing. Be-

yond the emphasis on the concept of quality and its meaning, one can observe a dichotomy among the stated theories of quality of city environments. Some theories emphasized the objective domain of object and looked at quality of city environment as a quality and an industry that naturally had been a skeleton environment and existed independent of an observer so that environment quality has been revealed out of form. The second group that focus on subjective domain of individual introduce city environment quality as the phenomenon or event that is formed in the process of a mutual interaction between skeleton and perceptible features on one hand and cultural patterns and codes and mental abilities of the observer on the other hand. Ideas explored in this regard are provided in the table below.

Conceptual model of the research

Receiving of sent messages of environment by human demands them to understand and perceive of them. Basically we cannot find someone that receives total amount of actual information exposed to without losing some. On one hand people's capacities are limited. Even if we assume that all people are in ideal physical and mental conditions, again we cannot expect them to hear all the sounds of their environment distinctively and carefully, to see all the details of environment. Thus by considering features like age, mental characteristics, sex, extent of use of each of senses, education level and so on, we find that perceptive capacity of an ordinary human is much lower than assumed ideal conditions and because of such limitations, they are not capable of receiving many of the environment messages. With respect to given explanations, conceptual model of the research is as the one represented in figure2.
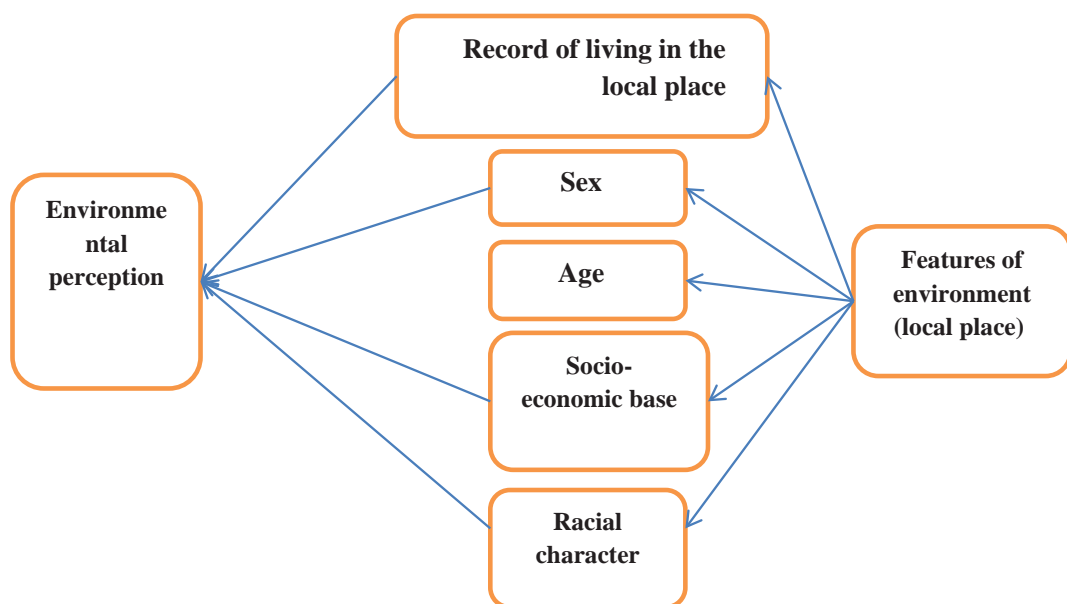
Unit and framework of sampling

Unit of sampling is the independent smallest unit that a response provides. Usually units of survey sample include single peoples. Each person in statistical community may be

theorist	Provided factors, principles and standards
Dohel	Presence of useful and accessible health services for all the residents(b,1); high quality of skeleton of house (b,2); presence of sound ecosystems(b,3);presence of active meaningful localities (b,4);primary needs of every citizen (b,5); presence of social relations to a sensible degree (b,6);presence of various and self-sufficient economy (b,7); variety of cultural activities (b,8).
Camilositeh	Closeness(c, 1); mass definition of space(c, 2) (figure c, 3); historical places(c, 4).
Kevin lynch	Liveliness(d,1);meaning(d,2);proportionality(d,4);supervision and auth ority(d,5);efficiency(d,6);justice(d,7)
Haten and Hunter	Variety(e.1);focus (e,2);democracy (e,3);permeability (e,4);security (e,5); suitable scale (e,6);organic designing (e,7);economy and its useful tools (e,8); creative relationships (e,9); flexibility (e,10); user consultation and user cooperation in projects (e,11).
pps	Linkage and transparency(f,1);tranquility and view(f,2);application and activities(f,3);sociability(f,4).
	Meaningful encounters in community (g, 1); introduction of social identity (g, 2); increasing of comfortable feeling (g, 3); good linkages (g, 4); attraction of various classes of people (g, 5); economical support (g, 6).
Jane Jacobs	Consideration of proper activities before attending coherence (h,1); use of multiple application both based on type of usage and presence of traditional buildings with different ages in one area (h,2);attending the street elements (h,3); permeability (h,3) ; context's availability (h,4); social transaction and flexibility of areas (h,5).
Margaret Mid	Sense of locality (I, 1); sense of continuity (I, 2); awareness of biosphere and sense of common destiny (I, 3); ecological support (I, 4); variety (I, 5); obscurity (I, 6); movement (I, 7); choice of dwelling place (I, 8); avoidance of social disconnection and separation from social joints (I, 9).
Tibaldez	Importance of places relative to buildings (j, 1); use of traditional urbanization experience (j, 2); mixing of usages and civic activities (j, 3); attention to human scale in cities (j, 4); providing of freedom of pedestrians (j, 5); accessibility and linkage for all people (j, 6);producing legibility and transparency (j, 7); attention to permanency and stability (j, 8); attention to gradual and lively development of environment (j, 9); mixing of nine-fold notions and access to more effective environmental composites (j, 10).
John ponter and Carmona	Quality of environmental sustainability(k,1); outlook quality of city (k, 2); quality of views (k,3); structural quality of city(k,4);structural quality of building and quality of public area(k,5).

Mathio Carmona	Linkage (l, 1); soft space and hard space (l, 2); public space (l, 3); safeness and security (l, 4); civic outlook (l, 5); compounding and density (l, 6); spreading (l, 7); time management of space (l, 8).
Bently and colleagues	Permeability(m,1);diversity(m,2);legibility(m,3);flexibility(m,4);coherence(m,5);sensory richness(m,6); color attachment(m,7).
Bariavard and colleagues	Secure possession right(n,1);self-support(n,2);protection(n,3);clean water(n,4);basic services(n,5);active economy(n,6);effective social controls(n,7);cooperative decisions and lack of social separation(n,8).
Allen Jicobs and applyard	Vitality(o,1);identity and control(o,2);access to opportunities, imagination and happiness(o,3);genuineness and meaning(o,4); social and public life(o,5);civic self-dependence(o,6);place for all(o,7).
Saut verth	Legibility (q, 1); composition (q, 2); access form (q, 3); comfort ability and peace(q,4);environmental support (q, 5); open spaces(q, 6); vitality and life (q, 7); variety (q, 8); homogeneity (q, 9); happiness and delight (q, 10); meaning (q, 11); health and safeness (q, 12); restoration and keeping (q, 13).
Transik	Maintaining continuity of movements (r, 1); closeness of spaces (r, 2); affiliation of edges (r, 3); control of axes and perspectives (r, 4); mixing of internal and external spaces (r, 5).
Colman	Historical protection and urban restoration (s, 1); designing for pedestrians (s, 2); vitality and variety of usage (s, 3); cultural environment and platform (s, 4); natural environment and platform (s, 5); attention to architectural values of environment (s, 6).
Office of England assistant prime minister	Cleanliness and neatness (t, 1); linkage (t, 2); attraction (t, 3); comfort (t, 4); cohesiveness (t, 5); liveliness and dynamics (t, 6); function (t, 7); distinction and determination (t, 8); safeness and security (t, 9); strength (t, 10).
pakzad	Beauty(u,1);unity(u,2);identity(u,3);harmony(u,4);order(u,5);continuity(u,6);sustainability(u,7); changeability(u,8).
Violich	Legibility(v,1);freedom of choice(v,2);creating motivation by applying distinctive urban structures(v,3);possibility of social life(v,4);legibility of cultural places(v,5); consideration of local-regional joints in form of plans(v,6).
Green	Connection, security, climactic peace, variety, fluency of transparency, continuity, balance, unity, personality, distinctiveness, scale of visual alternation, liveliness, harmony.
Brian goody	Liveliness, harmony, variety, scale, permeability, personalization, legibility, flexibility, change, richness.
Australian first especial force of urban planning	Perfection in architectural and urban designing, wider distribution of environmental sources among the population, extraction of environmental resources based on attention to natural and artificial platform of designs, answering to local features and needs, relativeness of designs to contemporary word conditions, letting designs open to conform to continual future changes, reinforcing the relation with past.

Haten and panter	Variety, focus, democracy, permeability, security, suitable scale, organic designing, economy and its suitable tools, creative relationships, flexibility, consulting and cooperating the users in designs.
Nelson	Observing of human scale, accountability based on ecology, promotion of walking-orientation or walkability, prediction of open spaces, prediction of cores in design, attention to street outlook, diversity, mixed and multiple usages, permanent repairing and maintaining of urban environment.

▲ Table1. Quality Standards of Urban Areas from Experts' Perspective; source: author(s) based on the final findings of the study

▲ Figure2. Conceptual Model of Research; source: authors

a sample unit. In this research, subject of our study is the person who is the resident of respective local places. To select the local places first 6 regions among Tehran regions were selected based on developmental indices (high, medium and low development). From highly developed ones, regions 2 and 6, from the low developed ones, regions 19 and 16, and from medially developed ones, regions 8 and 11 were selected. From region 2, Saadat Abad, from region 6 Yousef Abad, from region 19 Falah, from region 16 Nazi Abad, from region 8 Narmak, from region 11 Monirieh was selected.

Data analysis

Factors taken from theoretical basics and professors' brainstorming were provided as structured questionnaire. For professors' brainstorming open question by experts stated in this way that in your opinion in domain of environmental quality which factors can be called as perceptive factors of environmental quality. Obtained factors were sorted out as structured questionnaire by binary nominal scale. The question of respective questionnaire was stated as this; which of the following factors can be considered as perceptive factors of environmental quality? Finally factors which experts agreed upon, and based on respective formula, extent of representation and agreement upon them were more than 80%, were introduced as perceptive factors of

environmental quality. Representation coefficient of 12 factors was 80% or higher than 80% that the order off them are showed in the following table.

Findings of the study

Present study permanently uses two different strategies to deal with the issue at hand; analogical strategy and inductive strategy. The purpose of this section is evaluating research hypotheses in the context of analogical strategy. In other words, the results of evaluation of quantitative hypotheses represent that extent of perception from factors of environmental quality including legibility, comfort, permeability, meaning, sense of place, safety, security, closeness, human scale, vitality, coherence, sensory richness, in places of the study is different. The results of Pearson correlation test represent that none of the perceptive factors has a significant relationship with age variable. Among the perceptive factors of the study only two factors of sense of place and security have significant relationship with record residency of the local place. The result of test of difference of averages (t-test) shows that none of the perceptive factors are different based on sex and education of subjects. Perception extent of each of factors of complexity (sensory richness) and human scale are significantly different based

on marriage status of subjects that in each of cases average of singles is more. Average of factors of legibility, comfort, safety, vitality, coherence and complexity is significantly different based on type of housing (leased, proprietary…) and other factors do not change with respect to housing. The data of test of different averages represent that there is a significant relationship between factors of comfort, meaning, and sense of place, permeability and factor of race. In other words, extent of perception of racial groups of Pars, Turk, Lor, Armen and Gilak from respective factors is significantly different. Test of different averages shows that extent of perception of each of factors of legibility, comfort, safety, permeability, and meaning by different social classes is significant with confidence of 99%. The complexity of the issue of perception of environmental quality has led the present research to deeply investigate stated questions and goals from different perspectives so that for getting perceptive factors of environmental quality we needed both conceptual basic work and comments of specialist professors. In this way we could evaluate those factors that involved both theoretical and experimental support from professors as perceptive factors. More important question to consider was that whether we could enter mental word

Perceptive factors	Coefficient of representation	Perceptive factors	Coefficient of representation
legibility	86%	security	82%
Tranquility	83%	closeness	83%
permeability	80%	Human scale	80%
meaning	88%	liveliness	%90
Sense of place	86%	Coherence	87%
security	81%	Sensory richness	85%

▲ Table 2. Representation coefficient of confirmed perceptive factors; source: findings of the study

of individuals and arrive at what themselves perceive from their own quarter and local place by stating perceptive factors as a closed questionnaire. This question has led us toward inductive approach, i.e. we should begin from real life of individuals, from what they themselves say so that without any intervention in what they perceive, and obtain fundamental data factors. Our open question was in face an ontological question that questioned quiddity of environment and collected whatever reached the perception of individual as the produced data. The obtained concepts of respondents' perception were in a variety of steps processed, categorized, synthesized

and codified that the result of it is two tables. The first table involved open codifying that was categorized through approximation of meaning and also difference of meaning and the second table was conceptualized based on different concepts and theories of urbanization.

In the second stage with regard to derive perceptive factors of urbanization, the perception of people again conceptualized and at last field-based data were synthesized with theory-based data.

Conclusion

As it was stated before, we cannot just by close

Quarter feature	code
code	
Rivulet of clean water / rivulet of water / clean water of rivulet / rivulets of water/ drainage canals and type of irrigation / water stream / streams of water / sound of water in the stream of water in a rainy season / sound of water / dried streams of water	1
Restaurants and confectionaries near the quarter/near restaurants/ smell of restaurants' foods/busy nights for restaurants/eating of favorite dish in quarter	2
(Regular quarter people/regularity of location/quarter organization (relative	3
Clean quarter/clean/usually clean	4
Cultured community/good cultural context/cultured people/high culture/personable residents/residence of cultured class in quarter	5
Antiquity/the oldness of quarter/old context/ oldness of quarter and some residents/old feeling/old settlements/old buildings and old people/ old quarter/old of neighbors/some old shops	6
Oldness of trees/green space and old trees/some old trees/presence of old and green trees/ancient trees	7
Sound of crows and birds flying massively and together/sounds of birds/sounds of birds in early morning/sound of crows and early morning birds/sound of crow/ sound of early morning birds that awakes me	8
Originality of people and quarter/originality/original people/locality of people/ gentle people who lived in this quarter in the past	9
Good access/suitable access/easy access/comfortable access/access/access to quarter/excellent access	10
Silence and silence and peace away from noise of cars / quiet and away from traffic of city center / peace like little noise / night silence	11

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Security / feeling secure / its high security / relative security of the quarter / security of the quarter/ suitable security	12
Park / Shafagh park / quarter's park and the memories I have of it / going park / park near the quarter / missing parks / present gardens and parks / flying park / central park / the park where my friends gather together / good parks / being near to city parks / Bahman park / beautiful Fadak park / Velayat Park / evening presence of people at parks	13
Academy / quarter academy / Bahman academy / quarter house / cultural house / existence of cultural houses	14
Sport centers / sport clubs / being near to some sport clubs / existence of gyms / quarter gym / grass football field / the pool / access to sport places	15
Easy access to other city parts / easy access to other quarters / access to all city sections / access to all regions / easy access to all city parts through public transportations / easy access to different regions / centrality and access to all sections / good accesses to everywhere / access to superhighway / easy access to Azadegan, Emam Ali and Chamran superhighways / easy access to superhighway /easy access to different quarters / convenient local access from commuting perspective / good access to different places / easy access to city center / moving and shifting in the city / it has many ways out / direct and straight address	16
Traffic / street traffic / high traffic and crowded / local traffic (parking space) / low traffic / light traffic / traffic plan	17
Visual complexity , multiple visual and sensory chaos	18
Recreational center / recreational centers / jaunt/ promenades near the quarter / access to recreational centers / possibility of mountain climbing / quarter circus ((velayat	19
Green trees / trees / trees and green space / plane trees of Piran martyr street / tall green trees / sylvan / plane trees/ verdant trees / tall plane trees / street trees / a lot of trees / trees round the alley / movement of trees and leaves / dense trees that are vanishing / beautiful trees	20
Dynamic street / dynamics and movement of the quarter / liveliness of movement / vitality and freshness / mobility of the quarter	21
Good friends / cordiality and friendships / neighborhood friends / friends / intimacy of neighbors / good and friendly kids / intimate residents of the quarter / loving people / kindness / not seeing friends / compassionate people / being compassionate / empathy with others / responsibility	22
Good people / good residents / good humans / discerned people / caring for people / good quarter / good social relations of people together / good treatments / of people / suitable for family	23
Slope alleys / high declivity of alleys and streets / high declivity / different levels of pedestrians / pedestrians' bumping / uneven pedestrian surface / a lot of stairs	24
Easy parking of car / high parking lots / parking lots	25
Verdures / verdures and freshness / fresh and verdure quarter /presence of green space /green area / green space / using of quarter's green spaces	26
Umbrage / enough umbrage of trees / shadows and dimness	27

Access to shopping centers / shopping centers / nearness to shopping centers / easy access for purchasing / existence of different stores / shopping centers / access to purchasing / nearness of butchery, fruit shop and market / plenty malls / buying / different malls / shopping centers and malls / possibility of easy access to malls / various shopping centers / nearness to Abdol Abad market, Emam Zadeh Hasan temple / Aluminum sellers / Tehran second plaza / market and access / access to a lot of shopping centers / existence of market for purchasing / near the market / market and shopping mall / clothing and furniture shopping centers / Emam Zadeh Hasan shopping center / Yaft Abad furniture shopping center / clothing shopping center (Emam Zadeh Hasan) / supermarket / purchasing from quarter plaza / purchasing / quarter's market / variety of goods / best-selling market / second market / Madaen street (second market) / happy environment of market / variety of shops / crowded market / commercials / distant shopping centers / shops	28
Comfort / peace / tranquility of quarter / tranquil and cozy / peaceful / tranquility of neighborhood / comfort and convenience / have peace of mind in the quarter / relative peace / comfortable feeling	29
A lot of constructions of old houses / day to day development (construction projects) / a lot of construction of buildings / construction noise nuisance / buildings under construction / construction	30
Natural elements / natural features like / nature / topography / four seasonal status	31
Buildings / building façade / beautiful buildings / plenty of towers / residential buildings / dense buildings / a lot of buildings / density of buildings / false density / high density	32
Streets / street of place of living / street / street designing / junction and avenue of the state / besieged by superhighways / highway at the corner of quarter avenue / superhighway / netted streets / Vali Asr street / a lot of alleys	33
Different civic facilities / suitable public facilities / nearness to different residential facilities / accessibility of needs / accessibility of different necessary facilities (shop,..) / facilities / easy access to necessary goods / easy and convenient access to facilities / quick access to needful things / easy access to civic wants / easy access of daily purchases / it has all the qualitative facilities of living in the quarters (shopping , mosque , health center) / openness of public places at night	34
Pleasant and intimate neighborhood	35
Access to services / accessibility of service facilities / good services /suitable civic services / suitable services	36
Not being exposed to the influx of immigrants	37
Peaceful co-existence of religious and unreligious classes / observing other people's right	38
Population density / high density of population / high population / overpopulated / population / density of population in alleys / bustle of population / small and overcrowded / the large population / high population and crowdedness	39

Access to quarte's mosques / nearness of mosques/ mosques and religious places / easy access to mosque / existence of various mosques / existence of great mosques / mosque / mosques / religious centers, mosques , and quarter panel / high number of mosques / good mosque / main square mosque / crowded mosques / near home mosque / famous Abozar mosque / religious panel / Abozar mosque (place of terrorism of leader) / Abozar central mosque / place of religious gatherings / Emamzadeh Saleh temple / Narmak central mosque / lively motions of old people to get to mosque near call to prayer	40
Suitable space for walking / possibility of easy walking in shopping centers / wide pedestrians / width of path / it has convenient pedestrians that are suitable for walking and they are orderly designed / proper width of pedestrians and their security	41
Access to hospitals and health centers / a lot of clinic centers and hospitals / clinic and medical centers / in front of hospital / access to clinics	42
Neighbors and quarter mates / residents of it / quarter residents / quarter kids / quarter people	43
Religious ceremonies and rites / mourning customs / holding of religious meetings / holding of useful religious meetings / mourning rites of Imam Hosein / religious panel / holding of religious ceremonies / presence in different rites and ceremonies / religious (Moharram and Safar rites in special days) / religious activities / plans for important events / ceremony and rites in the quarter / presence in rites / rites and feasts / crowding at the time of rites and feasts	44
Good neighbors / neighbors / good neighbor / harmless and quiet neighbors / not having any neighbor bothering / neighborhood / knowledge and understanding of neighbors from each other / good treatment of neighbors/ familiarity of neighbors	45
Religious atmosphere of neighborhood / religious customs / respect to Ramadan month / religious environment / religious families / religious and bound residents / religious atmosphere in occasions and ceremonies / being religious / religiousness of the quarter / they are somehow religious / high level of religion / religious activities	46
Traditional context / traditional culture / traditional / traditional and old houses and spaces	47
Compact passages / compact alleys / narrow alley	48
Insecurity /unfortunately insecurity in recent years / unfortunately crime and misdeeds from some of young people of quarter / crime and misdeed	49
Crowdedness and swarming / being crowded because of closeness to sport centers / high crowdedness / crowded / over crowdedness / crowdedness of the quarter / heavy traffic alleys / crowded alleys / crowdedness of streets / crowdedness of public passages and places / crowdedness until midnight / crowdedness of resort ((Jalili	50
Exchange of sport goods / shopping center of sport goods / sport shopping center of the city / existence of sport shopping centers / Ali Daei's shop	51
Easy access to public transportation / comfortable transportation and civic transportation services / suitable public transportation / Metro / easy access to Metro and BRT / nearness to Metro and bus stop / quick access to different kinds of public transportations like Metro and BRT and bus and taxi / nearness to Metro / it's (very good regarding crowdedness and access (for example Metro and especial line	52

Nearness to big market / nearness to market / easy access to market / nearness to Tehran capital market / market	53
House situation / place of house / block and the block area / house / my living place (house) / dull and somber space of house	54
Area of the state / environment of the state	55
Fruit (fruit and vegetable market) / day market / vegetables	56
Sense of dependence since I have live there for about 40 years	57
Nearness to the family / immediate family / relatives / visiting of relatives	58
Downtown	59
Unity and homogeneity of people / people are homogeneous and intimate	60
Private streets / privacy of state	61
Public places / public spaces	62
Pollution / smoke / still air / polluted weather / smoke	63
Pokey / gloominess / exhilaration / brightness	64
Geniality of neighborhood people / genial residents / genial and kind people / genial people	65
Uptown (high level) / cost of housing	66
Suitable view / mountain perspective / beautiful view from window of my room , I see green space not building materials / very beautiful view / near and adjusted by mountain / a whole clear view of the Tehran	67
Good weather / mild weather / cool and mild weather / good weather relative to downtown / weather / good air / more clean weather relative to same level spots / suitable air / breezing of mild wind	68
dogs	69
/ Heterogeneous culture of people	70
Trade people and shops in the whole area	71
Brightness / enough light / lights and bulbs	72
I remember the quarter's cinema / new and recently made cinema of the quarter	73
Existence of tall buildings / unusual tallness of the buildings / a lot of tall buildings / shapeless and ugly buildings / gloomy buildings	74
Flow of life	75
small parks and green area /shortage of green area and trees	76
Recreational and welfare centers / suitable recreational facilities / easy access to recreational centers / not having bakery especially one making sangak breads / not having bank	77
Existence of various squares / squares / quarter's squares / number of squares / wide squares / various orderly squares / standard and orderly squares / structure of the quarter includes 100 squares / main square / small square / Fallah square / existence of different squares that provides space for playing of children in the square / Red Crescent square	78
Noise of playing children in the square / alleys full of children	79
Dull and unfriendly relationship of people	80
Nearness to seven pool square / with little space from seven pool square / nabovat square / Nabovat square is a good shopping center	81
Small area of buildings / small width of houses / small area of house	82

Solidarity of people of quarter / unity in the quarter / social solidarity / daily habit of cooperation and solidarity	83
Distance from work and quarter	84
Unsuitable drinking water	85
Cheapness	86
Awful smell of rubbish beside rivulets / smell of sewage	87
Wideness of avenue near to corner of alley / wide and verdure streets / wide streets / broad streets	88
Childhood memories / happy childhood memories	89
Easy access to Behesht Zahra and holy shrine of Imam	90
Green squares in the middle of the quarter /big green square / it has 100squares / various green squares / existence of various squares that provide possibility of using nature / large green square / green squares / green and beautiful squares / squares and green area / beautiful water perspectives	91
Order in designing passages and squares / orderly passages / order in position of streets / good and almost standard structure of the streets	92
It has no special features to be described / it has no features	93
(Shortage of recreational centers(equipped park	94
State of 4000 martyrs in the holy defense / the alley is full of martyrs and their families	95
Some residents of quarter have high social and sensitive positions in the authority	96
Friends gathering together and smoking hubble-bubble in teahouse	97
dirtiness	98
Noise of train	99
Police station in front of the house	100
Noise /moving of motorcycles with high noise /noise of cars	101
Norouz holidays and ceremonies	102
Chaos and disorder	103
Inattention to other people's rights / low social culture	104
School closures /good schools	105
Crowded line of early morning bus	106

▲Table 2. Categorization of Derived Concepts from Free Perception of People from their Quarters or Local Places; source: findings of research

questions derive the perceptive factors of residents from their own environment. Introduction of factors from the people's perspective needs exploration of their mental worlds. The results of qualitative part after categorization of data show that most of the collected data conforms to the factors of quantitative part and questionnaire. In other words obtained factors of qualitative part are the same as those obtained factors of quantitative part. The important point to be considered in this part is that some of the derived factors of this part cannot be categorized under previous theories but rather they need the special com-

Open codifying	Pivotal codifying	Selective codifying
Sound of water/ sound of birds / sound of crows/ sound of children playing in the square	Audial sense	Sensory richness
Smell of restaurant foods / smell of trees	Olfactory sense	
Façade of beautiful buildings / beautiful buildings / beautiful nature	Visual sense	Sensory richness
Like status of topography / nature	Motor sense	
Perception of four season	Sense of time	Sense of time
Crowded and busy night for using restaurants	Various daily activities	Vitality
Liveliness of the streets / vitality and liveliness of the quarter / vitality and liveliness / liveliness and freshness / mobility of the quarter / happy environment of the market/flow of life	Active living	
Lively motion of old people to get to the mosque / presence of children in the quarter	Possibility of presence of people of different ages in the quarter	
Pollution /smoke / stillness of air / polluted air / smoke / inappropriate drinking water	survival	
Orderliness of the quarter in designing paths and squares / orderly paths / order in placing of streets / suitable hierarchy of path networks / up-to-date civic structure	Clear and resolute structure	legibility
Streets / streets of living place / crossroad and avenue of the quarter / net-like streets / lots of alleys	Existence of paths	
Being besieged by superhighways / superhighway at the corner of the alley / superhighway	Existence of edges	

▲Table 3. Categorization of Derived Concepts from Free Perception of People from their Quarters or Local Places; source: findings of research

munity of the present study (i.e. local states of Tehran). Therefore we can state the summary of perceptive factors of environmental quality in respective states or quarters as follow: legibility, sense of place, permeability, peace, comfort, vitality, sensory richness (complexity), sense of time, civic justice, security, human scale, sociability.

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Enough light / lack of brightness	Adequate light	security
Appropriate security /feeling secure / security of the quarter / police station in front of house	Feeling secure	
Existence of restaurants , economic centers; restaurants , cultural house, sport centers, recreational centers, shopping centers , mosques, welfare centers, different civic facilities, suitable public facilities / nearness to different kinds of residential facilities / accessibility of needs and wants/ accessibility of different necessary facilities(like shop ,..)/ facilities / easy access to necessary gadgets and tools / easy access to facilities / easy access to wants / easy access to civic services while having peace / easy access to daily needs / easy access of daily purchases/ it has all the potential features of living in the quarter(shop, mosque, health centers)/ openness of public places even at night / lack of recreational centers(equipped park)	Access to facilities	Peace and civic justice
Access to facilities /accessibility of facilitative services / good services /proper civic services	Suitable facilities	
Feeling of unity and solidarity between people of the quarter, good social relations / dull and unfriendly relations of people	Social relation and solidarity	Sociability
Kindness of people / kindness/ people / being compassionate /empathy with others/ unity in the quarter / social solidarity / cooperation and collaboration of people	cooperation	
Cultured residents/ good cultural context / gentle residents / residence of cultural class in the quarter / oldness of neighbors, good neighbors/ good friends / intimacies and friendships / intimacy of quarter mates / intimate and friendly youths / good people / good residents / good humans / respectful and wise people / philanthropy / good quarter / people's good social relations / people's good treatment / good for family / peaceful coexistence of religious and unreligious classes of people/ religious and bound residents /disparate and heterogeneous culture of people	Homogeneous public culture	
Oldness of quarter / old context / oldness of quarter/ old feeling / old buildings and old people / old quarter / oldness of some shops/ traditional context /traditional / traditional and old spaces and houses	Identity of place	Sense of place
Genuineness of quarter and its residents / genuine residents / genuine quarter / genuine people / locality of the area/ gentle people who had lived in the area before.	Social identity	
Childhood memories / happy good childhood memories in the area	Sense of belonging	

Existence of green area and trees / natural elements / natural features, sylvan / green space, beautiful water perspectives and reflections/ shortage of parks and green area/ lack of green area and trees	Influence of natural elements	permeability
Good access / local access / easy access to other parts of the city / easy access to other quarters / access to all quarters / easy access to all parts of the city through public transportations / easy access to the city center / easy access to Behesht Zahra and Holy shrine of Imam Khomeini , access to highway network , public transportations and services	access	
Existence of various squares / squares / quarter squares / consisting of plenty of squares/ square/ number of squares / wide squares / various orderly squares	Extension of public open space in the area	
Silence / tranquil and away from the traffic of city center / little sound / night cozy silence of the night		Tranquility and peace
Traffic / street traffic / high traffic and busy surrounding streets /local traffic (parking lot)/ little traffic /light traffic / traffic plan	Protection from destructive influence of cars	Comfort and safety
Convenience of parking the car in the quarter/ plenty parking lots/ parking lots	Convenience of parking car in the area	
Good weather/mild weather / cool and mild weather /good air/ breezing of light wind	climactic comfort	
Wide and verdure streets / wide streets / broad streets, suitable space for walking/ slope alleys / high declivity of streets and alleys / different levels of surface in the pedestrians / a lot of stairs / narrow paths, narrow alleys	Easy moving in the pedestrians	
Small area of buildings /little width of houses / small space of houses		
Clean water rivulets, clean water of rivulet, cleanliness of the quarter /dirtiness, awful smell of rubbish beside rivulets, smell of sewerage	Cleanness	Comfort and safety
Green space/ various green squares / large green square / green squares / beautiful green squares/ squares and green space	Green space	
A lot of constructions /dense buildings / a lot of buildings / dense constructions/ dense population / crowded line of early morning bus, swarming and over crowdedness	Population and density	
Existence of tall buildings /unusual height of buildings / lots of tall buildings / shapeless buildings / gloomy and dull buildings	Unsuitable height of buildings	Human scale

Noroz and ancient feasts and holidays /religious ceremonies / mourning rites of Imam Hosein / religious panel / feast and mourning ceremonies in the quarter / presence in religious ceremonies	Holding of religious and cultural ceremonies	Meaning and environmental symbolism

▲Table 4. Reconceptualization of Derived Data from People's Perception; source: findings of the study

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