Evaluation and improvement of the effective factors on interaction in urban space with emphasize on children's presence: Case study of Sanandaj

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Abstract

These days, the compatibility of the urban spaces and the needs of the residents found an especial importance by developing cities and urban spaces. The urban developing experts emphasize on the role of urban spaces in neighborhood scale in creating the social and personal needs; therefore, the presented research attended to evaluate the case study (Ghalechaharlan neighborhood Sanandaj) for developing the interaction in the urban space with emphasizes on children's needs.

The theoretical bases of the research have been taken from scientists' theories in different urban and regional, economic, social areas. For facility, the research's evaluating model has a whole goal of two criteria: physical and nonphysical, six sub-criteria: neighborhood context, open space, the existent elements in the space, the management characteristics, social and psychological. The research type is application. The methodology is descriptive-analytical. The method for gathering the data is done as executive, completing the questionnaires of parents, children and authorities.

For evaluating the data, the SPSS software, Chi-square independent test and student T-test by utilizing two hypotheses (H_0, H_1) was used. In this research 149 questioners were filled. Finding showed that Chi-Square=12.506; that is, there is relationship between children's interaction (move in the space) and the housing type. And t=21.685 cleared that the children's satisfaction from physical characteristics of Ghalechaharlan Neighborhood space is more than non-physical characteristics.

Finally, according to the codified model, the presented research attended to the presented ways for improving the quality of child-like environment and children's social interaction development.

Keywords: interaction, urban space, children, Sanandaj.

Introduction

Children and teenagers are the important groups who use the space in town and neighborhood scale, Neighbor Street, neighborhood center, Children Park and Neighbor Park. Therefore, by attending to the existent of families and children in different neighbor scales it is necessary these spaces will be dealt with the physical and cognitive development of children to make up their vacuum relationship with nature and help their abilities' efflorescence. The city should be human-centered. The grown city has been developed but the economic-socio cultural comprehensive and homogeneous development has not been found out. The child is the part of urban society. It can be said that the attention to him or her is the urbanization bases due to the urban

space mobility. Since the growing in every child is so important and has the deep impact on their future personality, and since the character formation is done in the first 7 years of life; so, attention to the children who are the future makers is so important because supplying the update field and training their talents and solving the main, emotional needs and their security leads to the city's future economic, social and cultural development. The goal of the research is assessing and codifying for improving the children's interactions in space. So research Hypotheses are :

H1: there is significant relationship between housing type and interaction in urban space.

H2: nonphysical characteristics of space impact more than physical characteristics of space on the interaction of children in urban spaces.

For exploring the literature review, the experience of Iran and the world about urban space and child have been brought in two tables (1), (2):

Table (1): Literature review accessed from world experiences (Reference: authors)

Characteristics	Goals	Accessed from world experiences
Attempt for creating security, repelling the trashes, preventing the ethnical tensions and bothering and hurting the children, preventing the pollution and shame and social seclusion.	Preventing the children's death and die.	The under low-developed countries
Attempt for creating the social coherence, self-sufficient, application variety, moving freedom, Pacifying the traffic, green spaces, basic services, preventing the social seclusion.	Improving the nurture and regarding the right by educating and prevent from working.	The developing countries
The coherent social identity and right equality.	Widening the social and personal domain.	The industrial developed countries
The business and social activities, the narrow street with planted tree, speed60, secure place, the possibility for trafficking the fire fighter cars, gathering the trashes and school bus.	Pacifying the traffic, changing the street to the local accessing.	Vunreff
Local unity, the ownership feelings, preventing the possible destroys and reducing the costs.	Direct cooperation of child and parents.	The neighbor-made playing grounds
Entrance for public, the shadow place, gatheringplace, gardening, multi-purpose ground, playing tools, security and creative playing elements.	Healthy maturity, education, socializing, physical activities, having the multi-purpose spaces,	Denvar

Methodology

The research method is the descriptive-analytical research from the writing method and attending to the research question points of view (Van Poll, Ric, 1997).

In this research the library study and executive study were used.

The data gathering tools includes: executive observation, children painting, reviewing and analyzing the written passages and references, picture exploring existent proofs, table, picture, statistics and plan.

Table (2): literature review accessed from the experience of Iran (Reference: authors)

Characteristics	goals	City
Experience and the historical antecedent of city, increasing the educational level of girls and women, the public and private parts' interesting for executing the design and the women's presence in social activities	-	Uz
Creating the clinic, park, playing ground, shadow spaces, educational spaces, bicycle and walking paths, secure and accessible green spaces and creating the child-like primary school	Supplying the designing reference in planning and designing the child-like city and child-like schools, creating the common design child-street, creating the common design for primary years of life	Bam
Conserving the children with special needs, keeping the child in front of hurt and abuses, paying to the playing spaces, paying to the emotional growing of children, supplying the bed proportionate with needs, improving the pre-school education and making urban spaces suitable for children	Developing the project as a design in all point of county, creating the emotional secure space for families, attracting the investment for the activities which are related to the family, coming in to existing new jobs and attracting the international facilities for conserving children	Chalus
Standardizing the urban furniture , supplying the suitable spaces for children playing in residential complexes	Increasing the quality of public spaces	Tehran
Secure ways to schools, securing the urban pedestrians, the securing the child –walking places, supplying the secure spaces around the school, free use of the public transportation for under 12 years children	Making the environments suitable in transportation and traffic	
Creating the child house, improving the creativity, blooming the child's talent, creating the miniature towns, founding the parties and national and international parties, developing the toy house, creating the child-farm	Increasing the children's skills in social and cultural fields and executing the knowledge and nature designs	
Cooperating with people-based organizations, culturing, attending to child's right in urban system, recognizing the facilities	Encouraging the social and people cooperation	

For evaluating the data, the SPSS software, the Chi-square independent test and student T-test by utilizing two hypotheses (H0, H1) were used. In this research 149 questioners were filled.

$$n=\frac{pqz^2}{d^2} = \frac{(0.5)*(0.5)*(1.96)^2}{(0.08)^2} = 148061 \cong 149$$

p=the ratio, q= the break ratio in the society, z= the standard normal distribution value in the significant level of 5%, d=the error of sampling, achievement in the society.

Results

The psychological concept of the Capability of environment which was invented by Gibson points to the body of something or somewhere and is used special activities. Gibson believes that training attend to the designing the figures and combinations, while the capability of space is so important for people. In base of this concept, the made capability of environment can limit and improve the behavioral and the person's aesthetic. The capability of environment is different for each person and group. The concept of capability is suitable for analyzing the relationship between open spaces of the neighborhood and indicating the concepts and creative behaviors in children. A psychologist whose name is Grunion has classified the different levels of capabilities of environment in 4 classes which includes potential capability, conceptual capability, functional capability and aimed capability (Kyttam, 2002).

Table (3): The theorists' main criteria about child and urban space (reference: the writers' library studies)

The mentioned factors in relation to the physical quality of the friendly child urban space	Book, paper, report	Theorist
Attending to the activities, mixing the applications (because of use and buildings age diversities), penetrating and accessibility, social mixing and flexibility, security, identity, clearness, peace (lynch, 2006).	"A Theory of Good City Form".	Kevin Lynch
Cooperation, the legibility of urban space, security investment, freedom, green spaces, dynamic, social cohesion, sidewalk motion, easy accessibility, relation with nature, security, social relationship, playing (Malone et al, 2003).	"Growing up in cities", "growing up in an unbanning world", "Australian youth: aliens in a suburban environment".	Unesco, Louise chawla-Malon,Tranter
Social solidarity, security, mobility, social identity, diversity and cooperation, flexibility, stability, attention to the exhilaration and children's playing, creating the green space (Driskell, 2002).	"Creating better cities with children and youth".	Driskell, David
Belonging sense, creating the self-esteem in children, creativity in children, reinforcing the social interactions (Beken, 2012).	" Urban designing" .	Edmovd beken
Attending to the activities, mixing the applications (because of use andbuildings age diversities), penetrating and accessibility, social mixing and flexibility, security, identity, clearness, peace (Jacobs, 2000).	"The Death and Life of Great American Cities".	Jane Jacob
Cooperation, accessibility and interconnection, welfare and belonging sense, uses and activities, socialization (Glesson, & 2006).	"Creating Child Friendly Cities Reinstating Kids in the city".	Brendan Glesson and Neil Sip

Behavioral designs, stability cooperation, attention to physical and non-physical characteristics of environment about children (Churchman, 1999).	"Disentangling the concept of den-city".	Churchman
Cooperation, attention to the capacity of the children's environment, inclusiveness, attention to the scale (Barry Percy-Smith, & Thomas, 2010).	"A Hand book of Children and Young People`s Participation pers-pective from Theory And Practice"	Barry Percy-Smith & Nigel Thomas
Cooperation, social interactions (Clark, Alison, 2011).	Breaking methodological boundaries Exploring visual, participatory meth-ods with adults and young children.	Clarke-Stewart, Alison
Safe environment, space health, identity and belonging sense, conserving, developing, education, interaction, peace and concentration, training, game, recreation, curiosity, security, cooperation, welfare, insured house (Shie, 2007).	Preparing the city for children.	Esmaiele Shie
Cooperation, healthy, education, security, game, green space, social cohesion, attractive services' diversity, suitable meeting places, secure paths, relation with nature, relation with animals, motion independent, a place for speaking with, recreation, the local good governing, capacity and budget (Unicef, 2004).	"Building child friendly cities", Definition of a child friendly city".	unicef
Secure public spaces, secure paths, sidewalk motion, supervisory, organizing, existence of the attractive elements, relationship with nature, cooperation, security, justifying (Lennard, 1997).	The good city for children, in: Making Cities livable.	Lenard
Welfare and recreation and free, suitable housing, education, clean, secure and healthy environment, creativity	Universal Declaration of Human Rights.	Universal Declaration of Human Rights (Article) 24,25,26
Healthy environment, healthy, freeness, creativity and game (Malon,& Hasluck, 2002).	School grounds as sites for environmental learning: making the most of environment opportunities.	Malone, k

This research includes two dimensions; physical and non-physical. Through the analytical model; when a space has the primary potentials of space, it can cause to increase the quality of tissue

in two dimensions; physical and non-physical in neighborhood context, open elements, the existence elements in space in its urban spaces, social, psychological and management.
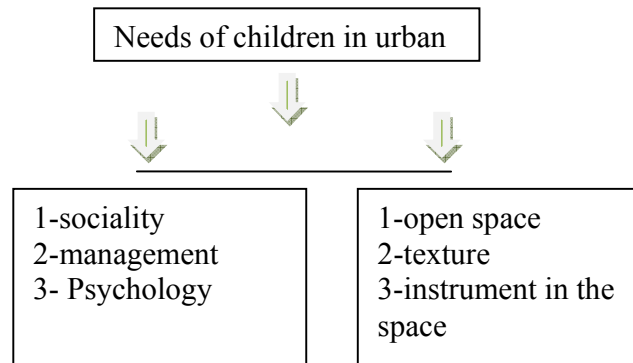

Figure 1: the relationship of space quality with environmental factors with emphasize on children's needs (the conceptual model of research) (reference: authors)

Sanandaj is in the 45, 59 and 46 East of the Greenwich meridian and 10, 47 and 35 Latitude north of the equator and 5 degrees of west of longitude from Tehran meridian. The old and organic contexts of Sanandaj are in the north of this city.

Ghaleaeh Chaharlan neighborhood is in the 1st region of Sanadaj; area 3 and 4 and neighborhood 3 and 4. In figure1, the situation of the considered limitation is shown.

Figure 2: the situation of the Ghaleaeh Chaharlan neighborhood (Organic context) (reference: the entailed design of Sanandaj, 2009).

For exploring the child's interaction with urban space, each factor shows the qualities of environments that the observation method was used for functional and objective discussions and filling the questioner were used for studying the mental factors. Figure 2 shows Khangah neighborhood's children's paintings.

In these pictures the child's escape and his tendency to the relationship with green spaces and trees and animals and nature has been shown. And by attending to the color diversity it is shown that the child revels in.

The child wants to settle the light, trees and green space and colored flowers and paving the street network level.

Finding shows testing the hypotheses that the linear Regression test and the t-test student were used, for testing the hypotheses.

Figure 3: Ghaleaeh Chaharlan neighborhood's children's needs demands from urban spaces (reference: the writers)

H0: there is not significant relationship between housing types and interaction (selecting the children's motion type).

H1: there is significant relationship between housing type and interaction (selecting the children's motion type).

Table 4: the relationship between housing and the children's going to school type (Reference: authors)

	q31					
	Walk	skate	bicycle	Services	Car	Total
House4 villa Count House Within %	17 26.6%	16 25.0%	18 28.1%	1 1.6%	12 18.8%	64 100%
Apartment Count House Within %	14 26.9%	4 7.7%	11 21.2%	6 11.5%	17 32.7%	52 100%
Count Total House Within %	31 26.7%	20 17.2%	29 25.0%	7 6.0%	29 25.0%	116 100%

The statistics of test is Chi-square = 12.506 and the significance level is Sig=0.014and by attending to this fact that sig<0.05, so the H0 is rejected in the significant level of 5%; that is, there is significant relationship between housing type and selecting the students' motion type; it means that the housing type is effective on selecting the children's motion type in space and this relationship is done as like this; that is, those who have shelters they like to skate and ride a bicycle and those whose houses are apartment they like to use their fathers' car.

Hypotheses2: it is considered that the nonphysical characteristics of spaces impact more than physical characteristics of spaces on children's interaction in urban spaces.

H0: children are satisfied from nonphysical urban spaces as well as physical urban space of their neighborhood.

H1: children are not satisfied from nonphysical urban spaces as well as physical urban space of their neighborhood.

$$\begin{cases} \text{H0: } \mu1 = \mu2 \\ \text{H1: } \mu1 \neq \mu2 \end{cases}$$

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Table 5: physical and non-physical characteristics (reference: authors)

X		N	Mean	Std. Deviation	Std. Error Mean
Y	Physical	149	11.3423	2.23235	0.18288
	Nonphysica1	149	6.9799	1.98464	0.16259

Table 6: The physical and non-physical characteristics and their relationships (reference: authors)

	Paired Differences			t	df	Sig.(2-tailed)
	Mean	Std.Deviation	Std.Error Mean			
Paired 1 F-E	4.36242	2.45559	0.20117	21.685	148	0.000

It is necessary to use the t-test student for doing the test, and as it can be seen the statistics of t-test is t=21.685, and by attending to the significance value; since the sig<0.05, so H0 is rejected in significance level of α =0.05. That is, it can be said that the children are not satisfied from nonphysical spaces as well as physical spaces in their neighborhood urban spaces. By attending to the values of the central indexes, it can be said that children's satisfaction from Ghaleaeh Chaharlan neighborhood's physical characteristics of space is more than nonphysical characteristics. Therefore, physical characteristics of space impacts more than nonphysical characteristics of space on attracting the children in urban space for increasing the social interaction.

Discussion and conclusions

These days, the comprehensive awareness has been accessed from cognitive needs, behavioral design and the growing process of children and leads the environmental-centered training

and learning theories to increase the training and rising in teenage and childhood. The results show that the urban spaces preparation in neighborhood scale can be effective on developing the children's attention for attending and active interaction of children. One of the main bases which can help to children's presence and interaction in space is designing and appropriating the accessibility and penetrating the space, replying the spaces, attractiveness, scale and attention to children's cooperation in designing a space.

So, it is important to increase the environment quality criteria, indexes and utilizing the potential which can be a reason for the lover the child's success.

By attending to the filled questioners and done analyses in SPSS software and using two hypotheses H0, H1 (because of the questioners' two-choice questions) and evaluating the student t-test and the simple liner Regression test, the accessed results of the research show that Chi-square=12.506, which shows the relationship between children's interaction and housing type. And the student t-test (t=21.685) shows that children's satisfaction from physical characteristics of space of Ghaleaeh Chaharlan neighborhood more than nonphysical characteristics.   Attending to the below mentioned approaches is so necessary for increasing the physical and nonphysical characteristics of space

Increasing the physical characteristics of city context for increasing the child interaction in space by:
- Utilizing the index identity elements through the social coherent and creating the liveliness and active centers for children.
- Conserving and keeping the belonging and place sense between children and resident.
- Replacing the compatibility applications and green space with ruined application.
- Using the plant and flowers in neighborhood's walls (vertical green space).
- Using useful things in the urban space for improvement of children's creativity.
- Holding the show (like pantomime, jugglery) in Shohada green space.
- The necessity for attention to the details like the floor covering surface, materials, color, smell, voice and etc. for reinforcing the children's senses.
- Using the behavioral designs of children and residents for designing.
- Attention to the children with special situations in context.
- Increasing the activity domain of the conserving councils.
- Increasing the relationships of authorities and people.
- Attention to the children with special situations by conserving councils.
- Creating a stamping ground space for residents and children in context
- Attention to children's scale in creating a space
- Creating the pause and breathe spaces.

Increasing the nonphysical characteristics of space for increasing the child's interaction in space by:
- Establishing the places like child and toy houses
- Settling the green place with applications compatible with hide and peace places
- Supplying the situation for creating the household secure area
- Using the diverse colors in different parts of park
- Using the natural and artificial elements for legibility of space
- Using the sign and statue in space
- Using the furniture and multipurpose game tools

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