

**THE ROLE OF OUTDOOR SPACE OF RESIDENTIAL COMPLEXES IN THE GROWTH AND DEVELOPMENT OF CHILDREN'S CREATIVITY (CASE STUDY: COMPLEXES IN SHIRAZ, IRAN)****Malihe Taghipour<sup>\*1</sup>****Malihe roozitalab<sup>2</sup>**

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**ABSTRACT**

The importance of creativity in contemporary era has attracted psychologists and experts to review and identify the causes of it and how to nurture it. Social psychologists with an emphasis on "the creative situations" suggest environment and social conditions that have different effects on the creativity of people. Since nowadays in Iran children's playing space is provided in a closed area and within the house and this caused them not to experience group playing and using the natural environment. If a child is allowed to experience the natural elements which are available in his environment, it results in their growth in social skills, cognitive development and their quality of education. In this article, based on Wechsler test of children, children's fluid intelligence was evaluated, and it can be used to assess their creativity growth rate because fluid intelligence reflects the creativity rate of children and SPSS software is used for data analysis.

**Keywords:**

playing space, children's activities, creativity, playgrounds, children's social development

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**INTRODUCTION**

Nowadays, cities have grown, and this excessive growth causes settlements in apartments that can be considered as the most important development in the process of human settlement in the cities. Residential complexes were to be located in the beautiful green spaces with low-density and create a suitable environment for social interaction of their residents but gradually they changed into high-density apartments complexes. Quality of life for city dwellers depends on the quality of the region's houses [1], and children with different abilities, needs and different maturities based on age, living conditions and social position of their living environment have more complex psychological needs than biological and physical needs [2] and with the development of quality of residential complexes as the child's development platform result in the communication between social development and its' polar effect in the society; and result in the social and physical development of children, because they are one of the most important social groups. If this point is not considered we cannot expect children to be brave, creative and curious people, and gradually will become consumers not producers [3].

The researchers of present era emphasize in expressing the basic needs of growth on the role of the children's living environment and facilities for free and independent mobility, development of physical skills and creating emotional and spiritual connections [4]. In recent years, most part of children's leisure time is spent watching television or things that do not have a physical activity, which can be due to the fact that parents do not feel safe in open spaces of residential complexes for children or if there is a designed space, this design is done regardless of the needs and abilities of children [3].

Playing is the essence of children's everyday life of and creates experience throughout childhood. Usually children prefer to play outdoors and compatibility of this space should be provided considering the security and closeness of these spaces to their living environment and that place should be attractive and be a precious space according to children's needs and create sense of belonging in the children, because a good design is a valuable investment; because playing help children in understanding and responding to the emotions, language skills, personal skills, exploration and creativity to have a flexible behavior in understanding and resolving problems [3].

The aim of this study was to evaluate the importance of children's playing space and its relation to growth, creativity and their psychological training in residential complexes and is conducted with a case study.

#### **METHODOLOGY**

The research considering the objectives is applied and considering the method is a survey. To collect data field method is used (using four parts of Wechsler test of children). According to this method taking the test from children in residential complexes was completed randomly (three residential complexes in Shiraz). After data collection in order to analyze them, the obtained information was analyzed in the frequency distribution tables, statistical information and tables. Then the relationships between variables were analyzed using statistical tests of one-way ANOVA, test of homogeneity of variance, and descriptive statistics, with Scheffe test in SPSS software.

To provide a situation for the promotion of child's creativity with respect to outdoor environment of residential complexes, according to the research objectives, the following questions can be raised.

Do the playing environments in the residential complexes have a significant role in the process of flourishing children's creativity?

What environmental features and abilities facilitate children's creativity?

The main objective of this study is to investigate the role of children in residential environments and its impact on the growth of their creativity and investigating the weakness of the measures taken to customizing the open space and the playing places for children in residential complexes. So that based on the results we can change these settings to suit children's presence in order to take the first step in the social development of children in society. And investigating the holistic approach of the interaction between children and the place in open spaces of the residential complexes have been conducted for creating social growth and flourishing creativity.

#### **CASE STUDY**

The samples are three residential complexes with a single element central strip and linear design pattern (environmental) in Shiraz city [5]. All the studied complexes have been studied categorized in three groups of A, B and C.




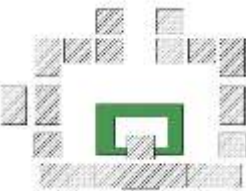





Amir Kabir Residential complex (a) (Figure 1 and 2) as an evaluated sample, it has open space only for traffic and children can play in the same spaces and the car parks and the amount of green space is low in the complex.

And more outdoor environment of the complex is dedicated to the traffic routes. The building density is high in the complex and there is actually no dedicated space for children to play and interact socially.

Motahari residential complex (B) (Fig. 9 and 1) is so that the apartments are surrounding the open space and in the middle of the open space, a small outdoor area is allocated for children's social interaction and playing, but unfortunately, children's playing area is too small and a few swings and slides are placed in this little space that all the space occupied and does not allow the children to play other games. No work has been done regarding the green space in this complex and less green space has been allocated.

Jannat residential complex (c) (Fig. 9 and 3) In designing the green space of this complex, the space for the traffic, social interaction and children's playing space have been seriously considered even children's bike park space is considered. This complex has a large open green space and children can easily play. Even the health of the complex is in good condition. In general, the open space has been considered and good design has been made.

*Table 1. residential complexes case studies*

Residential complex name	Site plan	Open space view	Open space view
jannat			
Matahari			
Amir Kabir			

*Table 2. Basic information about residential complex A,B, C*

Residential complex	The percentage of the playing environment	The number of residential units
Amir Kabir (A)	62%	340
Motahari (B)	58%	250
Jannat (C)	56%	336

### RESEARCH RESULTS

#### Measurement tools

According to the research purposes, the Wechsler Intelligence Scale for Children has been used in order to investigate the growth of creativity of children from 6 to 16 years to measure fluid intelligence, because fluid intelligence is closely related to the level of creativity and according to these findings it can be concluded that how much the children’s creativity has increased. The questions are selected from four parts of the Wechsler test which are as follows: 1. Testing Appendix A (scoring criteria of the similarities). 2. Testing the rest of Appendix A (the similarity between two things). 3. Testing Appendix B (meaning of the words). 4. Testing the rest of Appendix B (meaning of the words), based on which the intelligence of children in each complex is compared. In fact, by examining these cases, the impact of the open spaces of the residential complexes on the children's creativity is investigated.

The findings of the analysis of children’s fluid intelligence in Wechsler’s test has been conducted according to the age range of 8 to 16 years and the population of 21 children in building A, 20 children in building B and 22 children in building C were evaluated.

in the first test: Test Appendix A: similarities, 4 questions, maximum points of 4 and minimum points Zero/ questions are of one and zero points.

Hypothesis 1:

The null hypothesis: there is no significant difference between the fluid intelligence tests and the children (similarities) studied in buildings A, B and C (table 3).

Hypothesis 1: there is a significant difference between the fluid intelligence tests and the children (similarities) studied in buildings A, B and C (table 3).

**Table 3. Descriptive statistics**

	Frequency	Mean	SD	Minimum	Maximum
Complex A	21	3.0476	.97346	1.00	4.00
Complex B	20	3.0500	.99868	1.00	4.00
Complex C	22	3.3636	.84771	1.00	4.00
Total	63	3.1587	.93682	1.00	4.00

According to the above table (table4), the variance of the compared groups is homogeneous. Therefore, we can conduct the analysis of variance.

**Table 4. Correlation coefficient of variance**

Levene’s Statistics	Degree of freedom for Group 1	Degree of freedom for Group 2	Level of Significance
0.069	60	2	0.934

According to the above table (table5), the average difference observed between the groups is not statistically significant. Therefore, H1 is not confirmed. According to the H1, this result is obtained that according to the type of the questions that are in an easy level the growth of creativity among the studied children is similar up to a specific point.

**Table 5. One-way ANOVA**

	Total squares	Degree of freedom	Mean square	F	Level of sig
Between the groups	1.419	2	0.710	0.804	0.452
In the groups	52.993	60	0.883		
Total	54.413	60			

2. In the second test, the test continued Appendix A: The similarity between two things, 19 questions, the highest score of 73 and a minimum of zero points/ the questions are of two, one and zero points. According to this test:

**Hypothesis 2:**

The null hypothesis: There is no significant difference among the fluid intelligence test results of children (relationship between two words) of the studied complexes of A, B and C (Table 6).

Hypothesis one: There is a significant difference between the fluid intelligence test results of children (relationship between two words) and the studied complexes of A, B and C (Table 6).

**Table 6. Descriptive statistics**

	number	Average	standard deviation	minimum	maximum
Complex A	21	13.9048	2.87932	9.00	20.00
Complex B	20	15.0500	3.37912	9.00	22.00
Complex C	22	17.0909	3.87801	10.00	25.00
Total	63	15.3810	3.61640	9.00	25.00

According to the table above (table 6), the variance of the compared groups are homogenous. Therefore, variance analysis can be done.

**Table 7. ANOVA test**

sig	F	Mean square	The degree of freedom	Total square	
.011	4.822	56.140	2	112.279	Between groups
		11.643	60	698.578	Within groups
			62	810.857	total

According to the table above (table7), the mean differences between the studied groups is statistically meaningful. Therefore, the hypothesis two is approved. So, Schaffer follow-up test, was done for two by two comparisons (table8). Due to these two hypotheses the result can be achieved that according to the type of questions that are at the average level, children's creativity growth is dependent on the surrounding environment and children of the complex C were in a good situation in terms of fluid intelligence and creativity, compared to the children of the complexes A and B (Table8).

**Table 8. Two by two complex comparison**

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Significance level	Standard error	Mean difference	Group J	Group I
.565	1.06610	-1.14524	Complex B	Complex A
.013	1.04099	-3.18615*	Complex C	
.565	1.06610	1.14524	Complex A	Complex B
.162	1.05422	-2.04091	Complex C	
.013	1.04099	3.18615*	Complex A	Complex C
.162	1.05422	2.04091	Complex B	

The mean difference is significant at the 0.05 level.

According to the table above (table 8), the fluid intelligence average of the children of the complex C, is significantly more than the complex A. But there is no difference between complex A-B and B-C in terms of fluid intelligence of children.

in the third test: Test Appendix B: words meanings, number of questions are 32, Maximum points are 64, and the least point is zero/ Question are two points, one point and zero points.

According to this test:

**Hypothesis 3:**

Null hypothesis: There is no significant difference between the fluid intelligence test results of children (words meanings) of the studied complexes of A, B and C (table 9).

Hypothesis one: There is significant difference between the fluid intelligence test results of children (words meanings) of the studied complexes of A, B and C (table 9)

**Table 9. Descriptive statistics**

	number	Average	standard deviation	minimum	maximum
Complex a	21	41.1905	11.59577	21.00	62.00
Complex b	20	43.0500	11.87866	20.00	61.00
Complex c	22	44.8636	10.37990	26.00	61.00
Total	63	43.0635	11.20034	20.00	62.00

**Table 10. Homogeneity of variance test**

Significance level	Freedom Degrees of Group 2	Freedom Degrees of Group 1	Levine Statistics
.837	60	2	0.178

According to the table above (table 10), the variance of the compared groups are homogenous. Therefore, variance analysis can be done.

**Table 11. ANOVA test**

Sig level	F	Mean square	The degree of freedom	Total square	
.569	.570	72.484	2	144.967	Between groups
		127.213	60	7632.779	Within groups
			62	7777.746	total

According to the table above (table11), the mean differences between the studied groups is not statistically meaningful. Therefore, the hypothesis 3 is not approved. According to the third hypothesis, and the type of the third questionnaire there is not a difference in creativity growth of the children of these three complexes and environment has no impact in

	number	average	Standard deviation	Min.	Max.
Complex a	21	22.3810	3.18553	17.00	29.00
Complex b	20	23.0500	3.37912	17.00	30.00
Complex c	22	25.9545	3.87270	19.00	32.00
Total	63	23.8413	3.78966	17.00	32.00

defining the quality of the hypothesis.

4. in the fourth test: Test Appendix B: words meanings, number of questions are 17, Maximum points are 34, and the least point is zero/ Question are two points, one points and zero points.

**Hypothesis 4:**

Null hypothesis: There is no significant difference between the fluid intelligence test results of children (words meanings) and the studied complexes of A, B and C (table12).

Hypothesis one: There is significant difference between the fluid intelligence test results of children (words meanings) and the studied complexes of A, B and C (table12).

**Table 12. Descriptive statistics**

	number	average	Standard deviation	Min.	Max.
Complex a	21	22.3810	3.18553	17.00	29.00
Complex b	20	23.0500	3.37912	17.00	30.00
Complex c	22	25.9545	3.87270	19.00	32.00
Total	63	23.8413	3.78966	17.00	32.00

**Table 13. Homogeneity of variance test**

Significance level	Freedom Degrees of Group 2	Freedom Degrees of Group 1	Levine Statistics
.690	60	2	0.373

According to the table above (table13), the variance of the compared groups are homogenous. Therefore, variance analysis can be done.

**Table 14. ANOVA test**

Sig level	F	Mean square	The degree of freedom	Total square	
.003	6.350	77.778	2	155.556	Between groups
		12.248	60	734.857	Within groups
			62	890.413	total

According to the table above (table14), the mean differences between the studied groups is statistically meaningful. Therefore, the hypothesis 4 is approved. So Scheffe follow-up test, was done for two by two comparison.

**Table 15. Comparison of the residential complex of children's creativity**

Significance level	Standard error	Mean difference	Group J	Group I
.830	1.09344	-.66905	Complex B	Complex A
.006	1.06767	-3.57359*	Complex C	
.830	1.09344	.66905	Complex A	Complex B
.033	1.08124	-2.90455*	Complex C	
.006	1.06767	3.57359*	Complex A	Complex C
.033	1.08124	2.90455*	Complex B	

\*. The mean difference is significant at the 0.05 level.

According to the table above (table14), the fluid intelligence average of the children of the complex C, is significantly more than the complexes A and B. But there is no difference between complex A-B in terms of fluid intelligence of children. And the result can be in this way that open environment of the complex C can have more effect on children's creativity growth and the children of the complexes A and B due to not having the quality of children's play space have no growth of creativity according to the 4th questionnaire.

### DISCUSSIONS

According to the Wechsler children test for comparing fluid intelligence of the children of three residential complexes A (Amir Kabir), B (Motahari), C (Jannat), that shows children's creativity based on fluid intelligence test, we concluded that complex C compared to complex A and B has a better status, and with the field findings of the three outdoor spaces of these three complexes it is clear that the design of these spaces is different and makes an impact on the quality of the complexes. In the complex C we have more green spaces than b and a, that if we want to have a comparison in the amount and quality of green spaces of the complexes A and B, both of them are in the same rank and these two groups have small green spaces with no quality. Complex C provides a space for kid's bike and all the children park their bike in that place but in complexes B and A We cannot see a special design special for the children just in complex b there is a small space dedicated to swing and slide that does not have an optimal quality. From the point of environmental health complex C is in desirable situation that during the field findings, some people were cleaning the complexes every day, and this situation was not good in complex b compared to the complex C, but had optimal situation compared to



complex A. If we want to compare the complexes in terms of the interference of the roadways and playing spaces, we conclude that in complex A the spaces are completely separated and there is a favorable situation, in complex b these spaces are somewhat overlapping, but like complex C are not completely separated, but in fact in complex A these spaces are not separated. And if we say that children do not have space and use roadways as playing spaces, this is not a perfect situation.

No	Variables	Frequency	Percentage (%)
1	<b>Age</b>		
	15-20 Years old	21	21
	21-30 Years old	37	37
	31 Years old and above	42	42
2	<b>Sex</b>		
	Male	53	53
	Female	47	47
3	<b>Education</b>		
	High School	36	36
	Diploma	16	16
	Undergraduate Program	23	23
	Drop out	25	25
4	<b>Occupation</b>		
	Civil Servant	17	17
	Businessmen	26	26
	Students	27	27
	Unemployed	36	36

**Description of Research Variables**

Table 2 shows the analysis of respondents' responses to items regarding the natural physical environment at Sipakario Beach, North Penajam Paser Regency. Of the 100 respondents, 8 persons (8%) disagreed, 36 persons (36%) fairly disagreed, 40 persons (40%) agreed, and 16 persons (16%) strongly agreed with the natural physical environment at Sipakario Beach, Penajam Paser Regency. While on the socio-physical environment at Sipakario Beach, 4 persons (4%) showed strong disagreement, 42 persons (42%) disagreed, 45 individuals' persons (45%) agreed, and 9 persons (9%) strongly agreed. Regarding issues on community welfare, 10 persons (10%) strongly disagreed, 33 persons (33%) disagreed, 48 persons (48%) agreed, and 9 persons (9%) strongly agreed.

**Table 2. Descriptive analysis of research variables.**

No	Variables	Frequency	Percentage (%)
1	<b>Natural Physical Environment</b>		
	Strongly Disagree	8	8
	Disagree	36	36
	Agree	40	40
	Strongly Agree	16	16
2	<b>Socio-Physical Environment</b>		
	Strongly Disagree	4	4
	Disagree	42	42
	Agree	45	45
	Strongly Agree	9	9
3	<b>Community welfare</b>		
	Strongly Disagree	10	10
	Disagree	33	33
	Agree	48	48
	Strongly Agree	9	9

**DISCUSSIONS**

Environmental carrying capacity affects the welfare of the local community around Sipakario Beach, North Penajam Paser Regency. It drives greater number of visitors. Environmental carrying capacity in a tourist destination can be in the form of accommodation, restaurants, travel business, souvenir/craft industry, transportation, and restaurants. In addition, it can be in the forms of life, culture, nature and other things attributed to the surrounding community with unique characteristics as tourist attractions. The natural physical environment is known to affect the community welfare. Natural physical environment includes natural wealth with different natural resources which bring different effects on every human being and visitors. Good environmental management helps improve one's welfare through proper control, monitoring, recovering, maintenance, development, utilization and structuring of the environment. The term environmental carrying capacity refers to the environmental capability in supporting the lives of human and other creatures in it.

The second factor that affects the community welfare is the socio-physical environment. Socio-physical environment is the environment of the population in a certain predetermined group where interactions occur. The social environment greatly influences human's behavior. Adequate understanding and knowledge about the management of the environment will also affects the how local community and visitors interact to each other. Sipakario Beach is a tourist attraction that is well-managed with friendly community and unique local culture, making it a favorite tourist attraction in North Penajam Paser Regency.

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