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Application Of the Physical Components of Educational Corridors in Promoting the Creativity of Architecture Expert Students with An Emphasis on Experimental Designs

Shabnam Asgaripur [1], Reza Farmahini [2*], Mahmoud Nikkhah Shahmirzadi [3]

1. PhD student. Department of Architecture, Semnan Branch, Islamic Azad University, Semnan, Iran
2. Assistant Professor, Department of Architecture, Faculty of Arts and Architecture,Yadegare-e-Imam Khomeini(RAH) Shahre Rey Branch, Islamic Azad University, Tehran ,Iran
3. Assistant Professor, Department of Civil Engineering, Semnan Branch, Islamic Azad University, Semnan, Iran

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ABSTRACT

Learning always occurs in the environment and environmental factors and conditions are unconsciously involved in the quality of education, so the environment as an educational place is important in terms of quality. The elements of the environment as non-formal education form an important part of the trainings outside the workshop locations. As a behavioral setting, environments are made up of elements that have meaning together. The characteristics and quality of each of these elements are effective in the formation of the type of learning. The purpose of this research is to change the environmental conditions in order to increase creativity by using experimental designs. This research is using causal-comparative method in A-B-A experimental designs. Targeted-cluster sampling of first-year and final-year students is used, and the sample size of students is determined by the available method with sufficient quantity. For both groups, control and test groups are considered. The results show that Torrance's creativity variables have grown in the group of first-year students, and the highest growth is related to the flexibility variable with a value of (1.000) and the lowest related to the variable Fluency is (0.589) in the fourth year group, the difference between the average coefficients between the post-test and the pre-test is much higher, and the highest level of improvement in flexibility and fluency variable is (1.000) and the lowest is related to expansion with the value is (0.851).

Keywords: *physical components, educational corridors, creativity, architectural expertise*

1. Introduction

Due to the fact that architectural universities have various physical characteristics, therefore, architecture education takes place in environments with various qualities, despite the wide and diverse range of factors that are effective in architectural education, such as academic characteristics and individual talents of professors and students. From educational facilities and standards, which include various micro factors and dimensions - the environment as a place for learning can lead to the improvement of learning and should be designed intelligently. In detail, today, how to teach architecture is the biggest problem in architecture school, so knowing the factors affecting it is also important to improve the quality of education. The studies conducted and the evaluation of architecture students' evaluation of architecture education show some deficiencies in the architecture education system in Iran. It is effective for students [1].

*Corresponding author: Re.Farmahini@iau.ac.ir

This type of education is called "hidden curriculum" which was first officially mentioned in 1960 by Philip Jackson. One of the points of view raised in this field is the factor approach which examines the factors affecting the formation of the hidden curriculum and some of them have emphasized the physical environment.

Improving the quality of architectural design education, as one of the most important courses for architecture students, especially in associate and bachelor degrees, is one of the most important goals of academic architecture education. Therefore, it is important to know and improve the factors affecting it. Numerous researches conducted in this field, which are often in the field of quantitative standards of courses such as teaching methods, teaching hours, number of course units, etc., are also often in the field of formal education of courses and less on environmental aspects and informal education, despite the importance of this type of education, it has been addressed especially in decision-making organizations and educational spaces, and its lack is felt due to the desire to improve education and maximum efficiency of educational spaces.

Also, often the designers of most of the academic spaces of the architecture without paying attention to the important role played by informal education, without creating a platform as an "event place" and without creating a "sense of place" [2], for this type of education, in fact, they create space without taking advantage of all the qualitative possibilities and only in line with formal education. Therefore, proving the important role of non-formal education, a part of which takes place indirectly in the environment of architectural education, can be the basis for the proper and more targeted design of architectural education spaces in line with the quality of architectural education. On the other hand, considering the generalist view of most of the researches in the field of architectural education, despite the significant progress of the studied areas including the field of environmental psychology, especially in recent years, the effects of these studies in creating change and improving architectural education are not very noticeable. is not. This research aims to influence the environmental components on first year and final year students in educational plans and tries to answer the question of how much the use of environmental power can improve creativity in freshmen and graduating students?

Theoretical basis:

Learning environment:

Man has always been influenced by his environmental factors and its constituent elements. These factors continuously affect his reactions and behaviors psychologically and physically, and the impact of environmental factors on learning can be analyzed from three fundamental aspects.

1- First, the entire learning process takes place in a physical environment with understandable and measurable physical characteristics. Whether sitting in a well-equipped conference room, under a tree or in front of a computer screen, people are surrounded by information. Specific subjects in the environment such as a chair, clothes and a cup of tea attract people's attention and people constantly feel the elements around them such as the light of a lamp, the smell of food and the heat of a fire, so every learning environment is full of people. It is environmental information.

2- Second, people do not passively touch, hear or see, but actively perform these actions. In any learning environment, they manage their limited perceptual resources by actively selecting environmental information for more attention, and also by using Experiences and existing knowledge structures are used to interpret this information in a way that they have experienced in the past.

3- Finally, the physical characteristics of learning environments can be emotionally affected with important perceptual-behavioral results. For example, most students describe learning in a very hot classroom as a difficult thing, and on the contrary, an environment that causes positive emotional reactions can not only lead to the improvement of the learning level, but can also turn the environment into a lovely atmosphere for learning. A place where people search for learning. It is clear that some learning environments are more convenient and suitable and help the person to concentrate and be careful in learning, and it is obvious that in learning environments where there are no suitable conditions, one cannot expect anything but a decrease in learning efficiency [3].

In fact, the experience of each person in life and the skills he acquires are related to the environmental conditions and the product of the interaction between that person and the environment in which he lives, activity as the main factor in the growth and learning of a student is a process that is related to space and the student's environment causes his all-round growth and the environment affects his behavior by creating opportunities and stimulating and encouraging him [4]. Educational spaces are

prone to become dry and soulless due to their special limitations. But all efforts should be made to prevent this incident from happening. The roots of every student's interest in learning in school and being in an educational environment are formed, and if the environment is inconsistent with the expectations of the individual, the feeling of repulsion and lack of interest in learning is formed. It is formed in inclusive [5].

Humans and the physical environment:

Undoubtedly, daily human behavior is related to the physical environment, therefore, to explain how the physical environment of architecture education affects the behavior of architecture students, it is necessary to examine the relationship between humans and the physical environment and the effects of these two on each other. [6] In this regard, it is necessary that fundamental concepts such as value attitudes, needs, as well as factors such as perception, learning and cognition that play a role in performing spatial behaviors, because any description, analysis, statement of theory and executive statements require concepts related to that theory. Therefore, in order to understand how to coexist and align with the abilities or capabilities of the environment, it is necessary to pay attention to how to perceive and recognize the characteristics related to behavioral positions, as well as how to relate the environment and behavior [7].

In examining the desires and, in other words, the conscious needs of humans, we will encounter countless desires, in such a way that it will not be possible to investigate them. A series of regular features. Maslow states that conscious and different daily desires are means to reach these focused desires to goals that are considered goals in themselves [8]. He says that certain needs lead us that we cannot go beyond. That is, we reach the satisfaction of certain needs that seem to be goals in themselves. Such needs in an ordinary person have the characteristic that they are often not seen directly but are always hidden behind a set of conscious desires [9].

How to learn from the human environment in the field of learning is the product of the surrounding environment. Of course, this learning is based on receiving, analyzing and interpreting environmental factors by his internal factors (cognitive abilities). But the environment has a very decisive role in learning [10]. Even when the learner is recording his mental data that is born of thinking. He is located, this thinking and its results will take on the color of the environment. Because thinking happens on behalf of this person in a situation and the knowledge that results in learning is a result of the interaction of the learner and his situation [11]. It can be said that learning is the result of a person's holistic understanding of his environment and his surroundings, and in terms of psychology, cognition is a creative and active interaction that goes on without interruption between the individual (or the internal factors) and his environment. Normally, this is a conscious interaction through which the environment is processed, but learning is not exclusive to the space or specific people, and in fact, it is an important part of every day-to-day activity and exclusive to the class. [12]. It is not school lessons. Perhaps the most appropriate opportunity even for children is the society itself, just as the best situation for a child to learn a language is at home. In fact, the mother tongue is the language that a child learns in the early years of his life. The environment teaches. What is more interesting is that the result of learning this language in an environment is much more successful than learning the languages that the child will be taught formally in the following years. Therefore, learning is an important part of every person's life and it happens even when people don't think that they are learning (like when walking in the park) [13]. Most of what a person has learned happened before he reached school age and outside of school hours and after he finished school. With such a view, man is always acquiring knowledge based on interaction with the world around him, and as mentioned, learning should not be assumed only in the classroom. New learning methods are always involved in the issue of continuous and continuous interactions of humans with each other and with environmental resources [14].

The influence of environmental factors on learning:

In the architecture of educational environments, it is necessary to pay attention to the wishes and needs of students. Because paying attention to the requirements is considered as one of the effective parameters, one of the effective educational factors in modern education is how the architecture of the school space is. The teacher, book instructor, student, teaching methods, educational management and family are among the factors that are usually effective in the learning process and are examined and explored, while in the new education and training, the physical space of the school is not only a dry environment and Spiritlessness is not

considered to be ineffective in the learning process, but as a living and dynamic factor in the quality of the educational activities of students [15]. According to education experts, at a glance, the architecture of schools and its constituent elements such as, color, light, sound, schoolyard equipment and can leave significant effects on learners and students along with other educational and educational factors [16]. And the inappropriate, cramped, dark, dry and soulless school will bring boredom and depression to the students, and it will have a negative effect on the level of learning and their active and cheerful presence in the school. Recognizing the needs of paying age groups, in the meantime, studying behavioral patterns in educational environments will facilitate the recognition of needs. In this chapter, the ecological psychologist believes that there is a special relationship between the physical-architectural and behavioral dimensions of the physical-behavioral settlements. Therefore, the classroom benches, the way they are arranged, will affect their behavior and learning [17].

Physical factors affecting learning

One of the dimensions of the educational environment is the physical factors that cannot be ignored in creating motivation and enthusiasm for education. The physical factors related to the educational environment and their attractiveness are categorized and explained in the following parts:

1. Light and its related factors, such as the amount and intensity of natural or artificial light;
2. The external dimensions of the class, including the wall, door and floor, per capita class area and per capita space;
3. Color and its impact on education and educational environments;
4. Class heating and ventilation;
5. Voice and the factors related to it, the organization and arrangement of the class [18].

Creativity:

The first step to understanding creativity is to define it. From Torrance's point of view, "creativity" is a process that includes sensitivity to problems, deficiencies, and dead ends that arise after recognizing a problem [19], and then the search for a solution and the creation of related hypotheses begin. Then the hypotheses and solutions are tested and the necessary changes are made in them [20]. In a creative perspective, creativity includes the definition of the characteristics of a production that provides a certain novelty and an evolutionary set of different constraints and context in which It occurs is consistent [21]. Creativity, in turn, is the capacity to produce an idea under an observable form or to realize a production that has both the properties of being new, that is, original and unexpected, and is consistent with the stage in which it occurs [22]. Two different types of creativity have been recognized. One side is historical creations, which means that no one had mentioned it before it was created for the first time in human history [23].

On the other hand, creativity is psychological, which means it is a surprising, valuable and new idea that the person who produces it does not consider the possibility that this idea has already been created by other people [24]. Design, mental creativity can appear in different fields such as innovation, specific problem and conceptual stage. Creativity and innovation Creativity does not automatically imply innovation; Here there is a need to consider the possibility and ease of developing an idea to a final product [25]. The skill of creative solutions in new products, processes or services is a process that Shali and Zhou (2004) refer to as innovation. Finally, innovation is only possible if a creative solution has already been produced. The dimensions of the realization of a new product, service or process focus on using creativity to innovate and providing the degree of innovation of the idea produced; Therefore, creativity represents a necessary but not a sufficient condition for innovation. Innovation consists of three stages: (1) convergence between a function to be fulfilled and concept finding, (2) concept development (3) its dissemination [26].

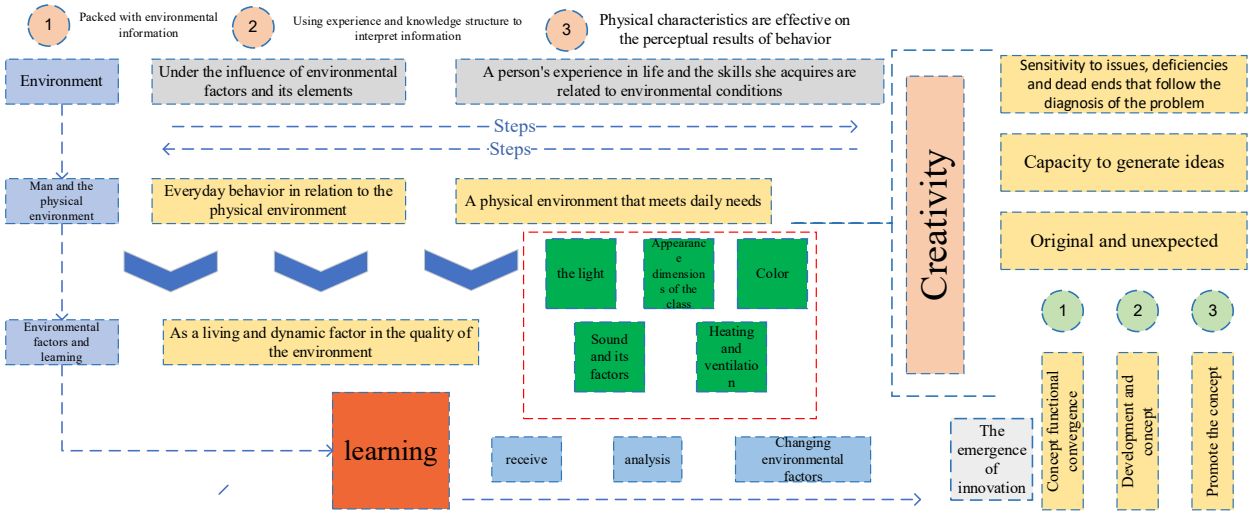


Figure 1. Research method process

2.Research Methodology

This research is of an applied-developmental type and with a causal-comparative nature. In terms of the method of conducting a quasi-experimental experiment with a pre-test and post-test design with a control group, it is of A-B-A type. The statistical population includes all first and final year architecture students, and the sample size is selected based on the sample available from Semnan Azad University. There are more than 300 people in all control and test groups in the first and last year. who were in the academic year 2022-2023, from which 101 people were divided into groups based on validity. 48 people in the experimental group of the first and fourth year were selected in 4 groups and 54 people were selected in the control group in 4 groups, which were chosen randomly. Taking advantage of the population size and the number of people has been selected as a cluster to participate in this project. The duration of the experiment or the effect of the parameters of the artificial environment built in the learning corridors was the time of entering the class and leaving the class, which is considered to be 90 minutes in total. which was divided into 6 sessions of 15 minutes each. The test group visited these corridors and environmental factors were tested for these two groups. To measure creativity, Torrance's visual test was used due to its high validity and reliability, and it was again measured with the CVI formula for 200 experts, and its value was 0.81. Torrance's test was based on his thinking about creativity in four areas, fluidity, extension, flexibility and originality. The diagram below shows the research implementation process.

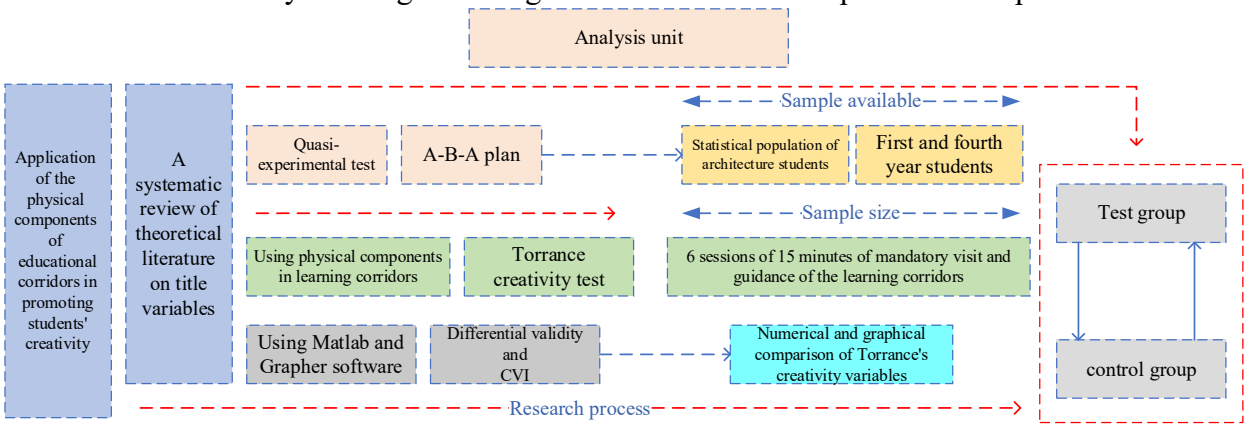


Figure 2. diagram of the research process

3.The method of doing hidden learning in educational corridors

In the first step, it is necessary for the students to be mentally and competently placed in the design and different levels of using the environment and based on the type of critical thinking, the educational plan is presented. Adopting the hidden learning method forces the learners to overcome the limitations implemented and achieved in physical details observed and received by the visual sense. It is essential that none of the 4 people in the groups have the same ability. Each and every student was divided with different levels of ability, including raw, novice, advanced, skilled, expert, and insightful. Meanwhile, the professor was redefined separately to better understand the components of the hidden learning environment.

The artificial environment created in terms of form, color, lighting, flooring, etc. was from the corridors leading to design education classrooms, which was re-designed to hold and display physical-environmental parameters. Also, an attempt was made to make the most of the built environment in the spatial parts, the questionnaires were distributed to the students after entering the class and visiting these corridors. After that, holding 6 sessions of passing through these corridors and training through 90-minute hidden learning, a sketch test will be held. For better productivity of the results and measuring creativity and creating an atmosphere of mental storm by the professor, the following steps are held according to the issues presented to the students. In the table below, it is presented in order of number;

Table1. The stages of conducting the design test in the test group of students with the hidden learning approach

operational process	order	operational process	order	operational process	order
Staining and creating form individually but with consultation and consensus in the group	13	Preparation of small spaces and their size	7	introduction	1
Form creation in different groups based on identifying problems and providing solutions	14	Choosing the right and recognizable site for each student	8	Learning to read the environment by the relevant professors	2
Volume and plan design individually	15	Site analysis and identification of all site specifications	9	Mention and analysis of how to face the problem in the form of physical design	3
Providing thematic and speed sketches for physical challenges	16	Creating a brain storm to present diverse and different ideas and taking notes by one person with the priority of being more consistent with the surrounding environment	10	Holding limited design sketches of Farhangsera	4
Reading the capabilities of the environment designed by Ajmon groups	17	Summarizing and preparing a written report of ideas with priority over each other	11	Conditions and solutions for each student in the design of educational corridors	5
		A different idea from rereading the environment	12	Keeping students and guiding them imperceptibly to these spaces	6

4.Findings

Descriptive statistics

The descriptive statistics between the two groups of students are as follows:

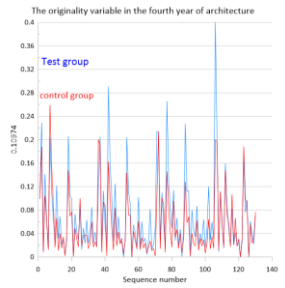
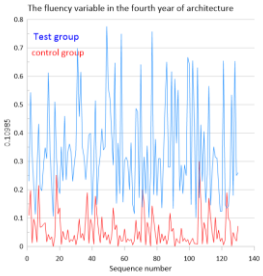
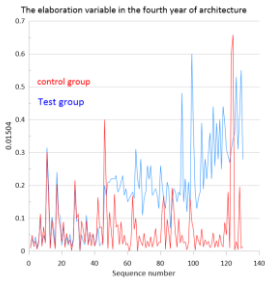
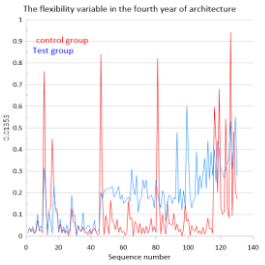
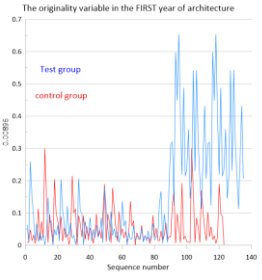
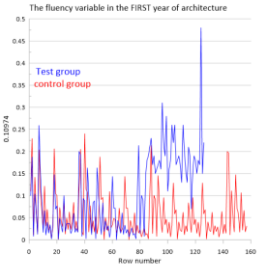
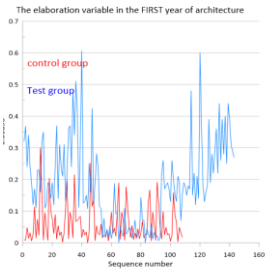
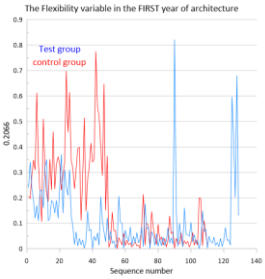
Based on the results obtained from the descriptive statistics, it was determined that in the control group of first year students, the number of women was 12 and in the test group, the number of women was 9, and in the group of fourth year students, there were 14 women in the control group and 11 women in the control group. Also, the way of answering has an irregular distribution, which was determined after Torrance's training in the data distribution of the fourth-year students that:

The results show that the environmental changes and the use of physical components in the educational corridors have promoted learning and increased creativity far more in the students of the fourth year compared to the first year. In the fourth-year group, fluidity variable has increased by 30% and average movement by 41%. In the variable of originality of distribution and frequency, it has increased by 10% and the moving average by 13%, in the variable of expansion by 18% and the moving average has increased by 21%, and the flexibility component has increased by 6% and its moving average by 5%. Is.

5.In the first year of architecture

The originality variable has increased by almost 6% and its moving average has increased by 8%. In the fluidity variable, the moving average has increased by 9% and the data distribution has increased by 6%. In the extension variable, the amount of data distribution increased by 10% and the moving average increased by 16%, and the flexibility variable did not increase.

Table2. Data distribution of creativity variables in the first- and fourth-year group of architecture students

Fourth year of architecture			
			
Increase in moving average= 13% Increase in data distribution= 10%	Increase in moving average=41% Increase in data distribution= 30%	Increase in moving average=21% Increase in data distribution= 18%	Increase in moving average=5% Increase in data distribution= 6%
First year of architecture			
			
Increase in moving average=8% Increase in data distribution= 6%	Increase in moving average=9% Increase in data distribution= 6%	Increase in moving average=16% Increase in data distribution= 10%	Increase in moving average=0% Increase in data distribution= 0%

6.Inferential statistics

In this part, based on the ruling presuppositions and also the low number of variables, the T test is used. It is clear that in the group of students of both years, the obtained T has a difference compared to the mean T, and based on the significance of this relationship, it effectively played a role in the students' creativity, which also indicates the first-year students. The important point is that the distance of the mean

T in the fourth-year students is greater with the obtained T value, and this can be a proof of the greater influence in the final year students.

Table 3. T-test indicators of correlated groups to compare the average scores of creativity factors of first year students

The value of T shows	The significance level	Degrees of freedom	Calculated T value	Correlation between scores	Standard error of the mean	Number	Average	Test	Variables
3.707	P<0.001	23	5.616	0.659	0865	24	74/25	pre-exam	(fluency)
		25			0.899	26	26/30	post-test	
2.779	P<0.001	23	4.584	0.744	0.628	24	41/10	pre-exam	(elaboration)
		25			0.411	26	67/12	post-test	
2.056	P<0.001	23	3.828	0.832	0.907	24	17/93	pre-exam	(flexibility)
		25			0.693	26	96/21	post-test	
2.436	P<0.005	23	2.508	0.631	0.632	24	67/14	pre-exam	(originality)
		25			0.636	26	30/16	post-test	

Based on the obtained tables, it was determined that due to the difference between T and apparent T, the null hypothesis is rejected and the existence of an effective and significant relationship between the progeny obtained from the group of students is confirmed. Also, the highest numerical difference in the group of first-year students is related to the expansion variable and the lowest is related to the originality variable. In the group of fourth year students, the biggest difference is related to fluency variable and the least is related to originality.

Table 4. T-test indicators of correlated groups to compare the average scores of creativity factors of fourth year students

The value of T shows	The significance level	Degrees of freedom	Calculated T value	Correlation between scores	Standard error of the mean	Number	Average	Test	Variables
2.107	P<0.001	28	8.624	0.469	2.66	27	23.63	pre-exam	(fluency)
		27			0.417	24	21.22	post-test	
4.056	P<0.001	28	9.844	0.477	0.698	27	12.66	pre-exam	(elaboration)
		27			0.454	24	13.44	post-test	
3.258	P<0.001	28	8.518	0.284	0.936	27	19.77	pre-exam	(flexibility)
		27			0.572	24	23.44	post-test	
6.056	P<0.005	28	10.588	0.558	0.541	27	14.66	pre-exam	(originality)

27		0.336	26	18.25	post-test

7.Correlation

At this stage, the results are entered into the JMP software, predictive relationships (regression) and correlation relationships are used for analysis. Two-Sample Kolmogorov-Smirnov Test is used to check the parametric and non-parametric type of data. Table 5 examines the normality of creativity variables using the Kolmogorov-Smirnov test.

Table 5. Kolmogorov-Smirnov test to check the normality of creativity variables

p	Z Kolmogorov Smirnov	The standard deviation	Average	Variable	Test type
0.319	0.793	3.23	27.77	Creativity variables	First year pre-examination
0.348	0.802	2.47	31.22	Creativity variables	Post-exam of the first year
0.417	0.789	1.89	46.88	Creativity variables	Pre-examination of the fourth year
0.345	0.802	1.47	35.47	Creativity variables	Fourth year post-exam

As can be seen in the above table, the Kolmogorov Smirnov test for the score of creativity variables in the Torrance test is not significant (p=0.348 and 0.314) (p=0.345 and 0.417) and therefore the data distribution has a normal distribution. It is not and non-parametric analysis should be used for it. Table 6 shows the Spearman correlation coefficient of creativity dimensions in control and test groups.

Table 6. Spearman's correlation coefficient of creativity dimensions in control and test groups

Fourth year			First year			Variable
(sig)	Correlation coefficient of the test group	Correlation coefficient of the control group	(sig)	Correlation coefficient of the test group	Correlation coefficient of the control group	
0.071	0.897	0.454	0.014	0.841	0.741	fluidity
0.009	0.695	0.588	0.001	0.734	0.645	expansion
0.004	0.743	0.471	0.002	0.841	0.596	flexibility
0.001	0.802	0.579	0.003	0.759	0.688	originality

Based on the results obtained from the test group and the control group, it was determined that the correlation between the dimensions of Torrance's creativity among the first-year students has increased after the implementation of the hidden learning educational plan, and the variables of creativity have become more correlated, the most related to flexibility with the value of (0.848) and less related to origin with the amount (0.759). In the fourth-year group, the correlation coefficient has grown more significantly. But the highest is related to the annual variable with the value (0.897) and the lowest is related to the expansion with the value (0.695).

8.Regression

To use the type of linear or multivariate regression, the internal correlation matrix diagram of the variables is used. After drawing the correlation matrix diagram, it was found that the factors have no linear relationship, so it is correct to use multivariate regression.

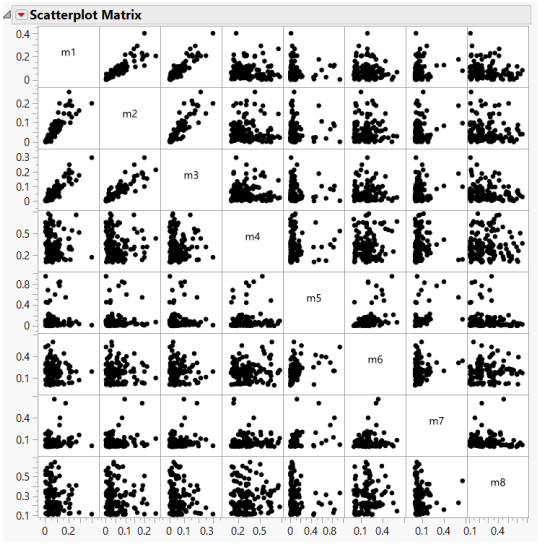


Figure 3. Factor correlation matrix

Based on the results obtained from the multivariable regression model, it is clear that Torrance's creativity variables have grown in the group of first-year students, and the highest growth is related to the flexibility variable with a value of (1.000) and the lowest is related to the fluidity variable with a value of (0.589).) in the fourth year group, the difference between the average coefficients between the post-test and the pre-test is much higher, and the highest level of improvement in the flexibility and fluidity variable is (1.000) and the lowest is related to expansion with the value (0.851).

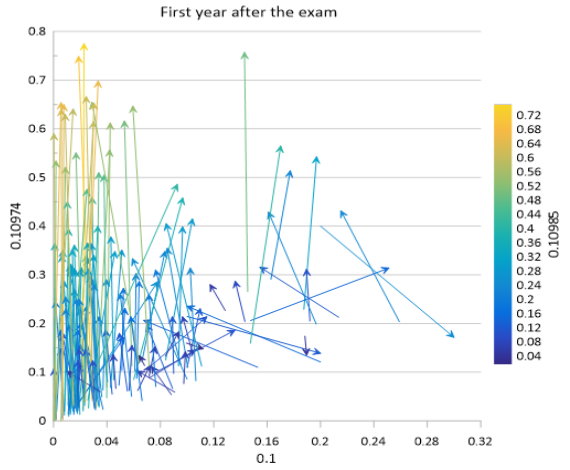
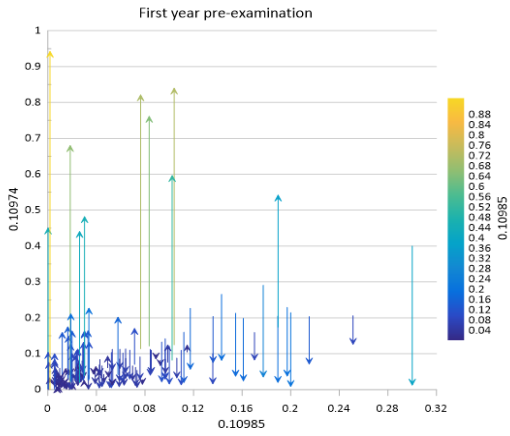
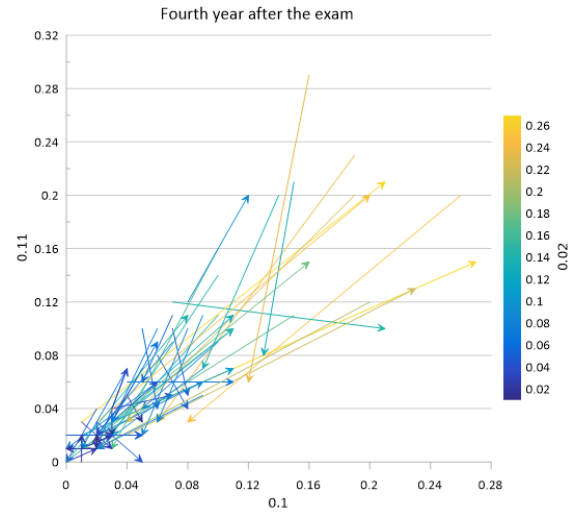
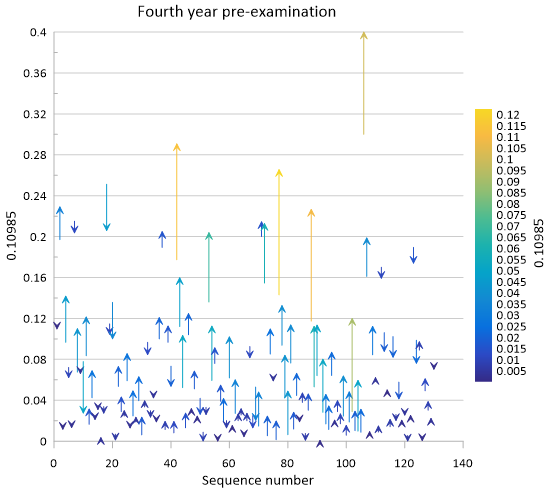
Table 7. Multivariate regression in creativity variables

first year								
Degrees of freedom	meaningful	t	β	B	F	The coefficient of determination	Scale	Test type
383	0.000	46.522	0.781	1.000	222/527	0.548	fluidity	witness (pre-test)
383	0.000	42.152	0.732	1.000	122/405	0.741	expansion	
383	0.000	40.223	0.662	1.000	343/217	0.673	flexibility	
383	0.000	38.229	0.648	1.000	943/199	0.746	originality	
383	0.000	8.859	0.664	1.000	612/201	0.589	fluidity	test (post-test)
383	0.000	11.134	0.662	1.000	623/643	0.811	expansion	
383	0.000	18.441	0.652	1.000	683/849	1.000	flexibility	
383	0.000	19.144	0.665	1.000	603/349	0.654	originality	
fourth year								
383	0.000	342.411	0.781	1.000	217.314	0.619	fluidity	witness (pre-test)
383	0.000	444.446	0.732	1.000	147.523	0.511	expansion	
383	0.000	985.972	0.662	1.000	852.381	0.478	flexibility	
383	0.000	211.233	0.648	1.000	298.921	0.654	originality	
383	0.000	225.753	0.664	1.000	247.257	1.000	fluidity	test (post-test)
383	0.000	653.681	0.662	1.000	321.644	0.856	expansion	
383	0.000	724.725	0.652	1.000	523.844	1.000	flexibility	
383	0.000	741.162	0.665	1.000	254.754	0.915	originality	

In the growth modeling with MATLAB software, the way variables are used in the questionnaire, the variables in the questionnaire have a lot of decline in the questionnaire, and after conducting the experimental design, it is clear that some of the questions in the Torrance questionnaire have a significant increase and the rest are constant, also in the first year group and before Ajmon's method of regular response has been a declining type, which after the experimental design, the incremental results and its amount are not significant. In the fourth-year students and in the pre-test, the way of answering the

questions is in an increasing and orderly manner, which after the experimental plan results in significant growth and learning along with brainstorming and increasing response coefficients in all questions.

Table 8. Modeling of Torrance creativity variable growth chart for each question

The growth chart of Torrance's creativity varia/ble in the group of first-year students
 
The growth chart of Torrance's creativity variable in the group of fourth-year students
 

9.Discuss

This research, different from the results of other researches, showed that creativity undergoes a greater transformation over time and with video training. Because the fourth-year students are more prone than the first-year architecture students, in the descriptive and inferential statistics for the obtained results, the same results can be considered. This educational plan can have a significant impact on improving fluency. This shows an increase in the amount of thinking and providing various solutions in the long term. In first-year students, the originality variable, which indicates the use of pure thinking, is more promoted. These results can be verified from the results of T and T obtained in the findings section. In the correlation between the data, it is clear that the average correlation of the data in Torrance's creativity variable has increased by 40% in the first-year students, which is close to 65% for the fourth-year students, and their variable relationship is positive and

increasing in the direction Achieving creativity.

The results showed that the effectiveness of the educational plan and creativity variables were analyzed by multivariate regression test. The biggest change in first-year students is related to the variable of flexibility and focus on creativity and providing various solutions in the long term by 60%. But in the fourth-year group, the variable of fluidity and flexibility, which leads to the provision of various solutions in the moment and in the long term, has grown by 80%.

10.Conclusion

Design education through hidden learning and application of environmental physical components in educational corridors has been meaningfully effective for creating more creativity. When the fourth-year students were placed in the experimental plan, they found the ability to present various alternatives in their diagrams and study magnets at the moment, therefore, they can cause attention to various solutions and the ability to make decisions. It improves the students, also this helps the students in the long term and makes more logical solutions to the design challenges, so imagination and imagination with a logical view can play a key role in providing a solution to the problem. It can also be effective in providing innovative and fresh ideas for using architectural elements. In first year, students, the results are different, the growth of creativity variables has been much less. Using physical-environmental components in creating diverse answers in the long term can increase the creativity of students in presenting diverse sketches and paying attention to the form and providing detailed executive details. This research showed that the use of physical-environmental components in hidden learning is more suitable for students of higher years, because they have the ability to perceive the environment and its elements, and education should emerge in them before holding this learning method. Also, the elements of creativity after the hidden learning trainings in the educational corridors become more cohesive with physical components and can easily be explanatory.

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