Identification of Architectural Components Affecting the Development of Knowledge and Gaining Experience from Nature (Case Study of Design and Construction of Educational-Cultural Complex)

Sara Jafari\textsuperscript{1*}; Seyyedeh Mahsa Shayesteh Sadeghian\textsuperscript{2}

\textsuperscript{1}School of Architecture and Environmental Design, Iran University of Science & Technology, Tehran, Iran.  
\textsuperscript{1}sarahjafarir@gmail.com, https://orcid.org/0000-0003-2286-6860  
\textsuperscript{2}School of Architecture, Faculty of Fine Arts, University of Tehran, Iran.  
\textsuperscript{2}mah.shayesteh@gmail.com, https://orcid.org/0000-0001-7569-8819

Abstract
The present age is the time for increasing environmental awareness and paying attention to the role of human connection with nature which can improve the quality of human life as well as preserving nature. Many factors contribute to the success of environmental projects, programs and the conservation of natural resources. Manpower is one of the most important ones and given the effect of human beings on their environment, in general, one of the most important measures to solve environmental problems is the development of natural resources and the promotion of public culture in this field, which, in turn, requires education about man's connection to nature and the environment. Therefore, the objective of this research is to identify the components affecting design in order to develop awareness and gain experience from nature. The present project is an educational-cultural complex with the approach of developing awareness and gaining experience from nature, which is formed with the aim of fulfilling two main missions: 1. Sensitizing people to nature and finding a view seeking the meaning of nature and natural phenomena 2. Raising the level of environmental literacy of people through education and preventing the indiscriminate destruction of the environment. This descriptive-analytical study addresses issues such as identifying design components in order to develop knowledge and gain experience from nature, investigating the relationship between humans and nature using the observation technique, field and library studies, methods of promoting and teaching environmental issues, sustainable architecture and green architecture, design bed studies, how the project is formed and the presentation of the physical plan. As a result, after identifying design components in order to develop knowledge and gain experience from nature, we achieve the necessity to build a cultural-educational complex in line with the research objective, and also the results show that environmental awareness and education have a direct and indirect effect on urban livability components of sustainability.

Key-words: Man and Nature, Educational - Cultural, Bionics, Sustainable Architecture, Environmental Issues.
1. Introduction

The relationship between man and nature has been changing throughout history to the present day when we face many environmental problems. One of the problems and challenges of today's world is the increasing population growth along with the increase of human intrusion and occupation in his environment, which has had major and often catastrophic effects on the planet's habitats, which has led to excessive energy consumption, deforestation, environmental pollution and extinction of plant and animal species (Widodo, 2019). Meanwhile, attitudes toward cultural-educational centers have an important place among urban centers, these centers play an important role in raising the level of knowledge and awareness of individuals in a society. Proper placement of these centers among urban centers is of importance.

All human activities and actions have a manifestation in nature and they are, in fact, rooted in nature. Accordingly, all human innovations in the field of science and life skills are nothing but the discovery of a corner of nature and there is no such thing as an invention. What we call invention is, in fact, the relative embodiment of the concepts and macro and current laws in nature that have existed since the creation of the universe millions of years ago and have been repeating, and we have just been unaware of it, as God Almighty says in the Holy Quran: “We did not create the heavens and the earth and whatever is between them for play. We did not create them except with consummate wisdom; but most of them do not know.” Compatibility of man and the environment can be seen in all human interactions with the environment. Regarding the compatibility of man and nature, a range of words such as accommodation, harmony, balance have been used for compatibility in the balance between man and the environment. (Kadaei, S. 2020). The crisis in the relationship between man and nature as well as the population density and congestion of the information in the current era, is leading to a tense atmosphere in life. (BATHAEI, B.2016). Also some studies in various fields try to increase human awareness and connection with nature. In this field, Habibi et al. (2013), in a study entitled "A Look at the Characteristics and Criteria of a Livable City, concluded that the concept of livability is one of the new concepts explaining the current urban systems that has found a proper and worthy place due to the change in the thoughts and ideals of contemporary society. Also, municipalities and municipal service providers can develop expert policies and programs to create and improve access networks and infrastructure and urban facilities, create public spaces and green spaces that promote a sense of vitality and social interactions in order to adapt the old structure and body to the current living conditions of residents. Salehi et al. (2013) believe that living-centered attitude has the greatest impact on environmental behaviors and is a strong predictor of environmental
behaviors. Mohammadian and Bakhshandeh (2014) in a study stated that environmental knowledge has a significant effect on environmental attitudes. Farahmand et al. (2014) also showed that there is a significant relationship between variables, environmental awareness, individualism, life satisfaction and environmental behaviors. Soleimani Mehranjani et al. (2016), in a study entitled Urban Livability: Concept, Principles, Dimensions and Indicators while introducing livability as a dominant approach in contemporary urban planning, examined its theoretical origins, effective perspectives, and theoretical-empirical literature, dimensions and indicators. Their findings indicate that given the current situation in most cities of the world, there is general agreement on the importance and necessity of identifying, analyzing and explaining urban viability in various dimensions, however, there is no consensus on defining its principles, criteria and indicators and the most important reason for this is the direct dependence of this concept on spatial and temporal conditions and, most importantly, the socio-economic and managerial context of the study population. In this research, we try to implement the design and implementation of cultural-educational complex after identifying the components affecting the awareness of nature. To achieve this goal, achieving two major missions is formed: 1. Sensitizing people to nature and finding a view seeking the meaning of nature and natural phenomena, 2. Raising the level of environmental literacy of people through education and preventing the indiscriminate destruction of the environment. In this regard, these issues raise questions in the mind, including what is the ruling order between nature and its elements? What are the lessons that can be learned from nature? What should be done to promote and educate nature conservation?

The present study attempts to answer the above questions by field and library study and their analysis because the answer to these questions shows the importance and necessity of such studies more than before because addressing such research plays an important role in the approach to developing awareness and gaining experience from nature.

2. Discovery of the Order of Nature

Order is defined as formal combination or any regular, methodical or coordinated arrangement in the placement of beings that make up a group or set, as well as the conditions in which everything is in its proper place and performs its proper duty. Early religions, despite their many differences in mythology and practice, have remarkable morphological similarities in their relationship to nature or the earth. They have been the custodians of their natural environment for thousands of years with a language that is perfectly in tune with the Earth's message and the views they have on the order of
nature that are of great importance in terms of preserving the natural environment (Sayem, 2018). All religions have somehow acknowledged the order in nature and natural phenomena.

3. Human Relationship with Nature

Regarding human relationship with nature, The main goal is to find a solution for a greater balance between natural and human (Bathaei, 2016 & 2020), there are different views including: 1. Non-systemic or discrete systemic relationship: This relationship is consuming and one-way and only seeks to provide more interest and domination for human over nature, 2. Continuous systemic relationship (organic): In this view, nature is defined as a macro system of which man is a part and needs to acquire identity through nature, 3. Extra-systemic relationship: (Man is the basis of nature's identity): In this view, the greatness of human existence is something beyond nature. Here, instead of man being defined by nature and being nature-like, it is nature that has a human-like structure as a component and acquire its identity through man, and especially the perfect man. 4. Inclusive relationship: God is the basis of human identity and nature: In this view, what has created the cogenesis and inherent similarity between man and nature is the source of existence, i.e. God, whose characteristics are the basis of the identity of the whole universe (Widodo, 2019).

4. Teachings of Nature

From the beginning of creation, man has been somehow inspired by environment around him and has used it in making and designing the tools he needs. "Bionic" in the dictionary means "ecological knowledge" or the use of artificial organs of nature. Bionics and bionic architecture is a science that draws inspiration from the various structures, behaviors, and connections of the world of living things. Nature is one of the notable patterns for architectural design. Throughout history, architects have consistently paid attention to the modeling of nature in various forms and have achieved various solutions in this regard (Kalantari et al 2020). Today, architects try to understand the forms, structures and construction processes of nature and to adapt their buildings to the natural world by applying the knowledge obtained from them. The influence of nature in architecture is traced in some way in every school of architecture (Mccoms, 2004). Many contemporary architectural schools are concerned with the complexities of nature, form and appearance perceptions. But the important point is to understand the underlying of this complexity. In general, architecture can follow three formal, structuralist and evolutionary approaches in imitating nature (Mannion et al., 2011).
5. Environmental Promotion and Education

Principled environmental protection is an effective approach based on the experiences of environmental agents around the world, and it seems that if we pay attention to its implications, frameworks and methods, we can hope for a sustainable move in environmental protection. To achieve sustainable development and environmental protection, we need environmental ethics. In order for such an ethic to emerge, it is necessary to review educational methods and systems. Governments and policymakers can be responsible for creating new changes and approaches to development, and this may improve the world. But these methods are only short-term solutions unless new education is given to young people around the world, and this will require a connection between students and teachers, schools and the community, the education system and society as a whole. Attention to the need for education for sustainable development is an issue that has been emphasized in all meetings and statements (Benhoussa and Agbani, 2017). Therefore, it is obvious that promotion is one of the most suitable educational tools for the promotion of local knowledge, dissemination of environmental technologies and social communication (which is a requirement of a principled approach to environmental protection). Given the fact that promotion follows a voluntary system, it can be effective and useful in attracting people's attention and participation in preserving the environment, which is the foundation of this approach.

6. Sustainable Architecture and Green Building

Sustainable architecture arises from sustainable development, which itself arises from the needs of human beings today in the face of the adverse consequences of the industrial and consumer world. The World Environment Commission provides current needs without compromising the abilities of the next generation to meet their own needs. In sustainable architecture, maximum efficiency and space are provided to the consumer by consuming the least resources. This design uses maximum environmental talent for consumer comfort (Bielek, 2016). Even in past architecture For example the design of the buildings (Pavilion) is based on the ancient architecture of Iran Using renewable energy such as solar and nature energy (Bathaei, B. 2016,2018),Today, in most developed countries of the world, in order to make activities purposeful in line with development policies and sustainable architecture by creating systems for measuring sustainability, the degree of compatibility of buildings with the environmental conditions of the context is evaluated. In recent years, building
ranking systems in the fields of architecture, engineering and construction have sought to provide the necessary tools for the design and construction of green buildings.

In fact, Leadership in Energy and Environmental Design (LEED) is an internationally recognized green building certification system. Green buildings, also known as environmentally friendly buildings, are among the structures that can make optimal use of valuable natural resources such as water, wind, geothermal, solar energy, from the building itself to design, construction and its instrument, operation, maintenance, repair and repair are in sync with the environment. The use of green buildings can be a good starting point to address the challenges facing the construction industry and achieve sustainable urban development. The goal of green building activities is to reduce the environmental impacts of buildings (Champagne and Aktas, 2016).

**LEED**

Construction projects must obtain LEED certification scores in order to meet the specific criteria for green buildings and be recognized as a green project. This ranking consists of 9 sections including different uses of the building. All of these buildings have five common criteria, including sustainable sites, water efficiency, energy, materials and resources, and indoor environmental quality (IEQ) (Table 2).

| Number | CABE | GSA | UFC | LEED | Common points |
|--------|------|-----|-----|------|---------------|
| 1      | Identity and history | Planning for space and place | Area required for the land | Site of resources and planning |
| 2      | Site map | Site design | Site planning | Sustainable sites |
| 3      | Site map | Site design | Site planning | Sustainable sites |
| 4      | Buildings | Architectural form | Outdoor design | Adequate water |
| 5      | Materials | Architectural form | Outdoor design | Materials and resources |
| 6      | Organization | Organization | Organization | Organization |
| 7      | Interior design | Interior design | Interior quality | Interior design |
| 8      | Fully successful, long life span, poor fit | Sustainable design | Innovation in works | Sustainable plan and long life span |

Based on that, buildings with 40 to 49 points receive certification, 50 to 59 points receive silver award, 60 to 79 points receive gold award and 80 points and above receive Platinum award.
(Wu et al., 2017). The maximum point received in this ranking is 110, which is divided into 8 categories, and each category has a different score (Table 3).

One of the most important issues in improving the performance of buildings with LEED is the correct behavior of residents towards the solutions used in the building. A green building has a valuable function when the building and its residents act as an integrated system. Residents' satisfaction with the work environment in offices depends on the conditions of thermal and acoustic comfort, visual parameters, indoor air quality and other environmental factors of the space. In a study conducted by Khasheet et al., the effect of LEED on residents' behavior in relation to natural light and recycling was investigated. In this study, they concluded that LEED can positively affect the behavior and habits of residents and they can improve their behavior and habits by knowing that they are using a green building (Khasheet et al., 2016).

Table 2 - The Parameters (Khashe et al., 2016)

| Main feature           | Maximum score | Scoring feature                                                                 | Score  |
|------------------------|---------------|---------------------------------------------------------------------------------|--------|
| 1 Sustainable site     | 26            | 1 Preventing the production of pollution by construction activities Mandatory    |
|                        |               | 2 Choosing the right site                                                        | 1      |
|                        |               | 3 Achieving optimal density in built environments and proximity to the municipal service network | 5      |
|                        |               | 4 Reconstructing damaged and polluting sites                                     | 1      |
|                        |               | 5 Providing adequate access to public transportation systems                    | 6      |
|                        |               | 6 Providing space to place bicycles and creating spaces for changing clothes     | 1      |
|                        |               | 7 Using low-emission vehicles                                                    | 3      |
|                        |               | 8 Creating a proportionate car parking capacity                                   | 2      |
|                        |               | 9 Protecting or restoring animal habitat                                          | 1      |
|                        |               | 10 Maximizing outdoor space                                                       | 1      |
|                        |               | 11 Quantitative management of rainwater                                          | 1      |
|                        |               | 12 Qualitative management of water                                               | 1      |
|                        |               | 13 Preventing the formation of heat islands on the roof of the building           | 1      |
|                        |               | 14 Preventing the formation of heat islands in spaces other than the roof of the building | 1      |
|                        |               | 15 Reducing light pollution                                                       | 1      |
| 2 Water efficiency     | 10            | 1 Reducing water consumption                                                     | Mandatory |
|                        |               | 2 Saving water in irrigation systems                                             | 4      |
|                        |               | 3 Recycling wastewater using innovative technologies                              | 2      |
|                        |               | 4 Further reducing water consumption                                             | 4      |
| 3 Energy and atmosphere| 35            | 1 Ensuring the correct operation of energy systems in the building Mandatory     |
|                        |               | 2 Minimal energy consumption in the building                                      | Mandatory |
|                        |               | 3 Preventing ozone depletion through cooling equipment                            | Mandatory |
|                        |               | 4 Optimizing energy consumption in the building                                   | 19     |
|                        |               | 5 Using renewable resources on the site                                          | 7      |
|                        |               | 6 Ensuring greater accuracy of systems and building elements                      | 2      |
|                        |               | 7 Completing prevention of ozone depletion through cooling                       | 2      |

ISSN: 2237-0722
Vol. 11 No. 1 (2021)
Received: 30.01.2021 – Accepted: 28.02.2021
4. Measuring and auditing energy consumption in the building
3. Using green energy

5. Materials and resources
- Storing and collecting recyclable materials
- Reusing the building by maintaining the existing walls and floors
- Reusing the building by keeping non-structural elements inside the building
- Construction waste management
- Reusing materials and products used in the building
- Using recycled materials
- Using indigenous and vernacular materials
- Using materials with high renewal speed
- Using approved wood

5. Indoor air quality
- Achieving the minimum desired indoor air quality
- Controlling the amount of cigarette smoke emitted into the environment
- Installing carbon dioxide measuring systems in the exhaust air of the building
- Increasing the ventilation system
- Managing indoor air quality during construction
- Managing indoor air quality before operation
- Using materials with low pollution - adhesives and sealants
- Using materials with low pollution - paints and coatings
- Using materials with low pollution - flooring
- Using materials with low pollution - wood products
- Controlling chemical and biological pollutants and hazardous particles inside the building
- Controllability of lighting systems
- Controllability of ventilation and heating systems
- Designing thermal comfort system
- Auditing thermal comfort system
- Providing natural light
- Providing a suitable landscape

6. Innovation in design
- Innovation
- Design in sync with LEED

7. Regional priorities
- Paying attention to regional and local priorities

Table 3 - Scores

| Category type                   | Score |
|--------------------------------|-------|
| Location and transportation    | 16    |
| Sustainable sites              | 10    |
| Optimal water consumption      | 11    |
| Energy                         | 33    |
| Materials and resources        | 13    |
| Interior quality               | 16    |
| Innovation                     | 6     |
| Regional priority              | 4     |

LEED is now the most recognized building sustainability assessment system in the world. LEED has designed nine rating systems for New Construction (NC), Existing Buildings (EB),
Commercial Interiors (CI), Core and Shells (CS), Retail, Schools, Residential Buildings, New Neighborhood Units, and Health Centers. The figure below shows the design process of these nine versions over time (Figure 1).

### Figure 1 - Design Process of Nine LEED Versions Over Time

| LEED for:                  | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 New Construction        |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 2 Existing Buildings      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 3 Commercial Interiors    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 4 Core and Shell          |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 5 School                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 6 Retail                  |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 7 Healthcare              |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 8 Home                    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 9 Neighborhood Development|      |      |      |      |      |      |      |      |      |      |      |      |      |

- Initial version
- Pilot version
- Market version

### 7. Studies of the Site Context

Tehran is located at 51 degrees and 4 minutes to 51 degrees and 33 minutes east longitude and 35 degrees and 35 minutes to 35 degrees and 50 minutes north latitude on the southern slope of the Alborz mountain range and the northern margin of the central desert of Iran in a relatively flat plain which its slope is from north to south. Tehran has a climate with hot and dry summers and mild winters. District 6 of Tehran is one of the relatively old districts of Tehran, which is located in the center of the city. This region with an area of 2138.45 hectares covers approximately 3.3% of the city. District 6 is geographically located in the central part of Tehran, which is confined to District 3 from the north, District 7 from the east, regions 10, 11, 12 from the south and District 2 from the west (Roshan et al., 2010). One of the most important physical features of District 6 is its location in the center of Tehran, on the one hand, and the establishment of the most important administrative-service uses with trans-regional, urban and even national functional scale in it, on the other hand. This area is confined from three directions of west, east and north with three main highways of Tehran; Chamran, Modaress and Hemmat and from the south it is confined to the largest east-west axis of the city, namely Enghelab Street. Also one of the oldest and largest north-south axes of Tehran, Valiasr Street, passes through the center of gravity of the region. District 6 of Tehran has 6 areas (Habibpour Kouchaki et al., 2017).
Figure 2 - District 6 of Tehran

Figure 3 - Uses of District 6
8. Division of Design Spaces

This project is divided into the following sections according to the recreational, educational and research role of the functional spaces of the project:

- The educational and research area includes: educational classes, workshops, library, laboratory, site, film screening room, instructors room.
- The exhibition area includes image galleries, two nature exhibition halls and existing museums.
- The service area includes meeting halls (main hall, waiting space, behind the scenes), computer site, coffeehouse, toilets.
- The administrative area includes: information and admission, management, staff room, archive.
- The commercial area includes restaurants, flower and plant market and natural industries.
- The facility area also includes electricity room, engine room, warehouses.

9. Design Standards and Principles of each Section

The standards of the spaces intended for the design of each section include the following:

Meeting room based on lines of vision, arrangement of chairs.

Classrooms: sitting and writing surfaces, teaching aids and space, how to use wall spaces as a whole, placement of blackboard or whiteboard, screens, screens, size and place of windows, etc., ease of use of TV and slide device and other educational aids, locker room, storage, sound and light and sight points, heating and air conditioning.

Research laboratories: types of laboratories, flexibility, building shapes, laboratory per capita, materials.

Libraries: place of books, place of readers, place of staff, services.

Office spaces: closed system and open system.

Dining halls: entrance of dining hall, entrance of food warehouse, entrance of kitchen staff, exit of waste and garbage, kitchen and side spaces, space of restaurant staff, restaurant air conditioning.

Retail: Shop shelves.

Toilets, toilets for visitors and separately sorted by population.
Facilities and public parking: The characteristics and size of the facility depend on the scale of the building and the type of facility used (Fu et al., 2015).

10. The Structural System Intended for the Design

The choice of a sustainable skeleton system to bear gravity and lateral forces is of great importance. The most widely used systems are simple frame, moment frame, mixed frame, simple frame or brace in one direction and bending frame alone in the other direction (Lozano et al., 2019). In this project, a moment frame system is considered. By releasing the surrounding walls, this system allows the opening to be made in the designer's desired location.

11. Items Considered for Designing the Complex

- The air conditioning system along with the central engine room has been seen for the complex.
- Using septic tanks with absorption well for the complex.
- Creating substations for electricity transmission, creating transformer substations for electricity conversion, creating alarm systems for the required spaces, using photovoltaic cells in the central part of the complex for electrical installations.
- In this complex, in the museum and library section, spray systems are used to extinguish fires, which are installed on the roof.
- Using a central windcatcher-like form to provide fresh air and natural ventilation.
- Proportion of form with performance (as the linear markets, educational classes around the central courtyard, exhibition halls and galleries and conferences have been created in their appropriate forms).
- Respect for users in the complex (considering proper access to the complex, the existence of sitting spaces in the center of the complex and the area).

12. Specifications of the Site

- Location of the site: This site is located in District 6 of Tehran, Valfajr Town, this town is located between Hemmat, Chamran, Hakim and Sheikh Baha'i highways.
- It has good access to the main and secondary arteries of the city.

- The slope of the land in the area is relatively low and does not have much impact on the design process.
Reasons for Choosing the Site

1. Land use appropriate to the design intended for the educational-cultural complex (according to the inquiry of the municipality of District 6).
2. Feeling the need for an educational-cultural center (with an approach to nature awareness) in this area.
3. Suitable accesses to various urban areas.
4. Suitable visitor population at the neighborhood and district level.
5. Attracting the attention of different strata living in a high-traffic area away from nature to nature and its beauties.

Site Analysis

The uses around the land are considered as follows:

The building of the Iranology Foundation is located on the north side of the land.
Nour-ol A'emmeh Hosseinieh is located on the eastern side of the land.
Navid Salehin Primary School is located at some distance from the Hosseinieh.
The land between the designed land and the Iranology Foundation has been seen as a parking lot in the future development plan, which meets the parking lot needs of the complex.
13. Theoretical Foundations of Design

This complex is formed with the focus on two main goals: 1. Sensitizing people to nature and finding a view seeking the meaning of nature and natural phenomena 2. Raising the level of environmental literacy of people in society and preventing the destruction and pollution of the environment.

14. Design Alternatives

First alternative design: This type of design was rejected due to the lack of expression of the main idea of the designer (coexistence of human structure with natural elements), inadequate internal accesses and lack of central distribution space.
• Second design alternative: This type of design was rejected due to disproportionate composition of components and poor connection between different sections.

Figure 9 - Site of the Plan Designed for Alternative No. 2

Third Design Alternative

Regarding this design, it should be said that there is a proper connection between the different sections, as well as the appropriateness of form and performance. Therefore, this design was accepted as the superior and final option.

Figure 10 - Site of the Plan Designed for Alternative No. 3
15. Discussion and Conclusion

The present study aimed to design a cultural and educational complex with the approach of increasing environmental knowledge and awareness and people's knowledge of nature. The reason for choosing this area in this research was due to the lack and feeling of the need for an educational-cultural center (with an approach to nature awareness) and suitable accesses to various urban areas and having the potential to attract the attention of different strata living in a high-traffic area away from nature to nature and its beauties. In this research, after investigating the components of environmental awareness and education of the people and the relationship between these two variables and the construction of the educational and cultural complex, results were obtained. Then, in this research we came to the conclusion that without environmental awareness and education, environmental problems cannot be solved, man adapts to nature only when he becomes more aware of his surroundings and awareness is possible through education. The main role of environmental education is in fostering culture, as well as the skills needed to achieve the broader goals of sustainable development. This issue has become more important with the recent UN action in naming the Decade of Education for Sustainable Development (2005-2014). In fact, the United Nations has called on all member states to work in the decade of sustainable development to increase their commitment to educating the people about the need to build a sustainable future and to create capable citizens. Given the importance of human beings as the goal of development on the one hand, and the environment and nature as the bedrock of human activity on the other hand, the issue of having the right to a healthy environment for current and future generations became relevant and it was in such an atmosphere that the role of education as one of the key tools in the fulfillment of human development was taken into consideration so that human beings, as the axes of development, can play an active and effective role in development while acquiring new capabilities. Education is considered as one of the sustainable environmental pillars, the purpose of this education is to raise the level of knowledge and awareness of all people from childhood about the physical and biological system that supports life on earth; therefore, for this purpose, educational centers are being established worldwide to promote environmental awareness and knowledge and bring human beings closer to nature. In general, educational-cultural centers are an educational approach that should be designed and implemented using the prevailing approach in the research of this center in such a way that people acquire various social and individual skills by knowing the nature. Therefore, the establishment of cultural-educational centers for knowledge and awareness of nature in the country has environmental,
social and economic effects on the city and citizens and can have positive effects in the field of environmental protection and livability of metropolises.

Findings of the research on the site suggest that the construction of a cultural and educational complex can have positive effects in the field of education and environmental knowledge of citizens and improve education methods and strengthen citizens' interest and participation in conserving environmental resources and it will be directly and indirectly effective on cultural, social, economic dimensions of Tehran city and surrounding neighborhoods in the long term. As a result, the creation and development of this complex will lead to greater awareness and preservation of nature for future generations, as well as becoming a stable culture for the protection of nature in the future. Increasing awareness and education in conservation of nature and adaptation to it among individuals will lead to protective, responsible behaviors and, as a result, steps towards sustainable development, which these people consider the preservation of natural resources as their basic needs and those of future generations and will pass them on to the next generations.

16. Suggestions

According to the objective and result of the present research, the following suggestions can be made:

• Educators of the educational-cultural complex can use a combination of participatory methods and new media to raise the level of learning. Because combined methods, while attracting the younger generation, make them perform group and team activities and at the same time enjoy the benefits of both methods. It is also suggested that the culture of using such combined methods in education be promoted and even somehow made mandatory.

• Design and construction of educational-cultural places should be in line with the desired approach in terms of body and all cities in Iran in accordance with the population and climate should have one or more educational-cultural complexes with the approach of developing awareness and gaining experience from nature in order to preserve the environment and nature.

• In order to raise citizens' awareness, it is necessary to provide areas for interaction and participation of residents in making decisions on the environment at all levels, especially in the management, design, implementation, evaluation of environmental projects in all areas.
References

Afa, D., Benhoussa, A., & El Agbani, A. (2017). Promoting Environmental Education and developing Ecocitizenship through Moroccan Curriculum of «Life Science and Earth» Discipline. Journal of Materials, 8(9), 3360-3371.

Bielek, B. (2016). Green building–towards sustainable architecture. In Applied Mechanics and Materials, 824, 751-760.

Bathaei, B. (2020). The Architectural System of Persian Enclosed Garden: Recognition & Recreating of the Concept of Persian Garden. LAP LAMBERT Academic Publishing.

Bathaei, B. (2016). Persian Enclosed Garden: Recognition & Recreation of the Persian Garden. Revista Şcolii Doctrinale de Urbanism, 1(1), 53-56.

Bathaei, B. (2016). Process Analysis of environmental perception of Persian garden based on psychological theory of environment. EDITURA UNIVERSITAR “ION MINCU”, 124.

Kalantari, S.S., & Taleizadeh, A.A. (2020). Mathematical modelling for determining the replenishment policy for deteriorating items in an EPQ model with multiple shipments. International Journal of Systems Science: Operations & Logistics, 7(2), 164-171.

Champagne, C., & Aktas, C. (2016). Assessing the Resilience of LEED Certified Green Buildings. Procedia Engineering, 145, 380-38.

Fu, K., Yang, M., & Lee Wood, K. (2017). Design Principles: The Foundation of Design. Design Science and Applications.

Habibpour Kouchaki, N., Hosseini, S.B., Yazdanfar, S.A., Maleki, S. (2017). An Investigation of the Effective Factors on Yusef Abad Residents. Satisfaction in Shafagh Park Armanshahr Architecture & Urban Development, 10(18), 47-57.

Khashe, S., Heydarian, A., Gerber, D., Becerik-Gerber, B., Hayes, T., & Wood, W. (2015). Influence of LEED branding on building occupants' pro-environmental behavior. Building and Environment, 94, 477-488.

Bathaei, B. (2016). Change Is of the Essence, Regenerating of Brown Fields (Landscape Revitalization of Tehran’s Brick Kilns). 2nd International Conference on Architecture, Structure and Civil Engineering (ICASCE’16), UK, London.

Bathaei, B. (2018). Achieving Sustainable City by the Concept of Persian Garden. Acta Technica Napocensis: Civil Engineering & Architecture, 61(3), Special Issue–International Conference- Architecture Technology and the City Workshop Questions. https://constructii.utcluj.ro/ActaCivilEng/download/special/2018-10/ATN2018(3)_6.pdf

Lozano, D., Martín, Á., Serrano, M.A., & Lopez-Colina, C. (2019). Design of flexible structural system for building customization. Advances in Civil Engineering, (2), 1-18.

Mccoms, W. (2004). Keys to teaching the nature of science: Focusing on the nature of science in the science classroom. Science teacher (Normal, III.), 71(9), 24-27.

Mohammadzadeh, S., & Rad, A.R. (2014). Nature and Environment in Religions and Religions with Emphasis on Islamic Perspective. International Congress of Religious Culture and Thought, Qom. https://civilica.com/doc/301125

Roshan, G., Shahraki, S.Z., & Sauri, D. (2010). Urban sprawl and climatic changes in Tehran. Journal of Environmental Health Science & Engineering, 7(1), 43-52.
Sayem, M.A. (2018). Religious Understanding of Nature and Influence of Geographical Environment on Shaping Religious Beliefs and Practices within Christianity and Islam. KARSA: Journal of Social and Islamic Culture, 26(2), 195-214.

Wu, P., Song, Y., Shou, W., Chi, H., Chong, H.Y., & Sutrisna, M. (2017). A comprehensive analysis of the credits obtained by LEED 2009 certified green buildings. Renewable and Sustainable Energy Reviews, 68, 370-379.

Widodo, J. (2019). Human, Nature, and Architecture. RTEKS Jurnal Teknik Arsitektur, 3(2), 145.

Kadaei, S. (2020). Human presence in the architectural environment (from a phenomenological perspective), Tehran, Bid Publishing. 135.

Mohammadian, M., & Bakhshandeh, Ghasem, A (2014), Study of Factors Affecting Consumers' Attitudes and Intentions to Buy Green. Journal of Management Studies, 75(23), 39 - 68.

Mahnaz, F., Kaveh, S., & Hamed, S. (2014). A Study of Social Factors Affecting Environmental Behaviors: Citizens of Yazd. Urban Sociological Studies, 4(10), 141-109

Sadegh, S., & Zahra, P. (2013). Emamgholi, Loghman, Education and Environment (Attitudes, Awareness and Environmental Behaviors of Students). Journal of Educational Sciences, Shahid Chamran University of Ahvaz, 6.