

An Investigation on Approach of The Learning Environment in Urban Design

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ABSTRACT

The environment and its current components play an essential role in human learning. There is an interactive and mutual relationship between humans and environment. The relationship which is established between the container and the object in urban areas can be a type of learning and learner. The environment brings us together and disperses. People learn in it, become cultured, think, learn, organize themselves, and consolidate. The aim of this study is to explain the concept of learning space in the city as a place of learning through providing theoretical foundations. The method is used in this study is a qualitative-descriptive method by using theoretical issues in learning and human-environment relationship under discussion in educational and environmental psychology. The finding demonstrated that in urban learning environments, the real needs of human beings are redefined and also they are designed and adopted to learning needs.

Keywords

Environment, learner, learning, urban environment, Urban Design.

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Introduction

In daily life, people are constantly moving from one environment to another. Wherever we find a footprint of people and the community which is engaged in collective life, there are rules for the discipline, use and management of the environment, in this view, man is a thinking being who tries to make it meaningful with the conditions that the environment puts in front of him (Feygina, 2013). Undoubtedly, much of what a person learns is usually done by space during the early years of life. Learning in space is not limited to the child who is unfamiliar with the various contexts and areas, this process also occurs for immigrants in periods of rapid cultural changes or cultural contacts. Learning can take place anywhere and learning is not limited to a closed space called school. People can receive and understand information during their lives in cities and urban environments (Hassink & Klaerding, 2012). Therefore, urban environments with appropriate design and Planned can be a school that convey the desired design concepts to citizens and visitors to the environment. In today's world where people of all ages need to learn new things, technological developments, advances in communication science and information technology are taking place. Learning can take place anywhere in recent decades, the theory of learning spaces has been discussed in various topics and has found many

fans in the field of virtual spaces design and schools and even in architecture, because by designing such a space, the learning rate of people in space can be enhanced (Hutchinson & Herborn, 2012).

Urban designers as one of the main custodians of environmental regulation, place, space, have an important role in their structure and organization for continuous education and learning of users. So this article recognizes the need to address the learning environment in urban design and makes it a topic (Taylor et al, 2012). In recent decades, the theory of learning spaces has been discussed in various topics and has found many fans in the field of urban design and educational sciences and even in architecture, because by designing such a space, the learning rate of people in space can be improved. Learning spaces affect the rate of learning and other achievements of students. And this issue has allocated the subject of many studies in various fields, including the field of environmental psychology in educational spaces, for several decades (Kolb & Kolb, 2005; Razavi & Iverson, 2006; Oblinger & Lippincott, 2006; Falmagne & Doignon, 2010; Harrop & Turpin, 2013; Ellis & Goodyear, 2016; Damşa et al, 2019; Cook et al, 2020).

In making these arguments, it is necessary to pay attention to the concept of learning in the urban environment. Accordingly, the research questions is presented as follows:

What is the learning environment and environmental learning? What are the dimensions, components and principles of the learning environment in urbanism? What are the characteristics of an urban learning space as an example of a learning environment?

This study aims to investigate the potential of using evaluation as a useful toolkit for good practice guidance and as an action to express the criteria and indicators of the learning environment for public and open spaces. Moreover, this study can be exposed in future research to urban places, real world and topics which transfer the urban space to the place of learning in the city context.

Research method

The method of this study is based on theoretical issues in learning and the human-environment relationship under discussion in educational and environmental psychology. It has a review nature and using a descriptive research method. Documentary and library studies area used in the stage of explaining theoretical foundations, and in the next stage it investigates the learning environments dimensions. As the basics of learning theory in the field of urban design are discussed, the concept of learning and environmental learning in urbanism, generalization of learning keywords in the urban environment and dimensions, components and principles of learning are extracted.

Definitions and concepts

From the keywords in various specialized fields, various definitions have been made. One of these fields that is a pioneer in these topics is educational sciences. The definition of environment in this context means that the environment in the general sense of the word consists of a set of all spaces and components that surround different categories and different areas and different activities of human life. The environment has different types: social environment, physical environment, economic environment, Artifact environment, and natural environment, etc. in fact, these are abstractions of the whole environment to understand it better (Naghizadeh, 2010) and also in another definition with the help of semantics in psychology, the environment can be defined with the help of these three aspects: (trieb, 1974, 69).

- 1- The environment as something which is independent from the observer that always exists and provides information about itself, whether this information is received or not. (form)
- 2- The part of the environment that is perceived by us and affects our behavior. (Landscape)
- 3- The mentality that we have imagined from that perceived space in our brain and act according to that mentality (Mental image).

Undoubtedly, the phenomenon of learning is the most important psychological phenomenon in humans and evolved creatures. Learning psychology is one of the fundamental topics in the science of psychology, which has been allocated the subject of many researches and studies by scientists of this science and various theories have been proposed about it. The following are various definitions of the environment: (Table 1)

Table 1: Definitions of the concept of learning in various scientific fields, reference: Author.

reference	Definition of learning	Scientific background
NELSON, A. (2006). American Heritage Dictionary.	In American culture, learning is defined as "the acquisition of knowledge, understanding, or mastery through experience or study." But most psychologists do not accept this definition; because in those vague terms knowledge, understanding and mastery are used. Instead, psychologists in recent years have tended to define definitions that refer to changes in observable behavior.	Psychology
Hergenhahn, B.R, 1934	The most comprehensive definition of learning so far is defined by Hilgard and Marquis. These two psychologists have defined learning as follows: Learning is the process of relatively sustained changes in the potential power of experience.	

(Kimble, 1961)	The most famous of these definitions is the one proposed by Kimble. Kimble defines learning as "a relatively sustained change in behavioral power (potential behavior) that occurs as a result of enhanced practice." Although this definition is very popular, it is no means accepted by all psychologists.	learning is often measurable and descriptive. It is also a historical process because successive generations have worked together to gradually gather and transfer the knowledge, skills, attitudes and values of our species.
(Jones, 2010: 91)	Shikshantar believes that learning means accumulating, thinking, using knowledge, skills and attitudes that are complex, so that the individual or group can actively adapt to their changing environments.	
(Faris, 2006, 7)	Faris, learning (acquisition of knowledge, skills, attitudes and values) is an innate human activity based on a general desire to perceive and acquire the concepts around and learning is a complicated multidimensional social process. Most learning is gained through and or others. Learning results in a change in our behavior or attitude as individuals and groups to the extent that we are active. So	

Common Theories

In recent decades, the theory of learning spaces has been proposed in various fields. Ford et al. (1996) and Slack et al. (1996) were among the first thinkers who led to popularization of the term "learning space" in the architectural literature, followed by Jamieson et al. (2000) and Barnes (2006), a space is mixed with meanings and values and also developed as a concept of learning space. Of course, in architectural studies, those who have advanced their research on environmental psychology, such as Nisser (1967), Douglas (1973), and Rapaport (1982), have expressed learning space in the form of concepts such as cognition, perception, and meaning in parallel with educational psychologists. In management science, the issue of learning organizations and organizational learning was raised around the 1970s. Peter Singh was the first who established the issue of learning organizations and explained it in his books "the fifth discipline: The art and practice of the learning organization"

Global theoretical efforts regarding the learning space in architecture have fundamentally shifted from educational spaces such as kindergartens, schools and universities to generalizations to all spaces designed by architecture. Conventional research in this area has been done by Brown & Long (2006) and McPhee (2009). In Iran, good efforts have been made in the field of designing educational spaces by the School Renovation Organization, which is dedicated to educational spaces. So far, no research has been done to enter the learning environment in other areas of urbanism.

Learning environments from the perspective of different sciences

1- Learning environments in educational sciences

When looking at the literature, a great number of innovative educational initiatives can be found all

around the world. We all know that users are at the center of learning, so their needs should be at the heart of a learning centered design process (Barrett, et al, 2009: 1). It is not the design of learning spaces that create learning places, it is how they are used and what meaningful actions occur within them that create effective learning places. Learning places need to encourage and allow for self-reflection and development (Kolb, 2000). Part of the process in the transition from a space to a place is the ability to push the rules for individual expression and inhabitation (Caldwell et al, 2013: 10). Learning spaces for users in every environment such as educational environments and even public and open spaces were designed to provide users with a

common area in which to gather, relax, socialize and work together these environments. The results of research that has been done so far suggest that users who used these spaces demonstrated higher levels of engagement compared to those users who did not use these spaces.

And also bright, quiet, warm, safe, clean, comfortable and healthy environments are an important component of successful teaching and learning. A review of the learning environment literature helps to create and improve learning environments that are appropriate for current and future educational needs (Barrett, et al, 2009: 2). (Figure 1)



Fig1: The pattern of learning environments in educational sciences. (JISC, 2006: 7).

educational sciences are as follows: Entering a college or university building should create a sense of excitement about learning. The entrance is the first point of contact between the institution and its clients and will establish the prevailing culture for visitors. Its next priority is to offer clear, accessible information about the institution and what can be achieved there. An entrance area will also need to provide a welcoming, secure environment, establishing the capability of the institution to cater for its learners – after all, it has to compete for learners' time and attention with the shopping mall, the leisure center (JISC, 2006: 8). The entrance to a college or university building has, in effect, an important and multifunctional role. One large plasma screen overlooking the entrance reminds learners of key events in the institution's calendar or activities for the day. These multiple routes to information ensure a variety of needs are met. Security is attended to – CCTV cameras are in evidence and card access into the building may be required in some instances. Brightly lit, spacious and architecturally impressive, the entrance area inspires interest and respect (JISC, 2006: 8). Wireless

connectivity and varied arrangements of furniture provide flexible interview areas (JISC, 2006: 9). In the following, we can point to the equivalence of all these features in urban space.

2- Learning environments in management sciences

Implementing an integrated learning curve between the organization and training can effectively facilitate knowledge and learning management. It is defined as an organizational strategy and as a valuable tool to facilitate learning and knowledge management. Organizational learning literature clearly emphasizes on the facilitation of learning, knowledge management, collective participation and shared values and leads to individual and collective learning (Watkins and Marsick, 1996; Garvin, 1993). The main theorist of learning organization, Peter Singh, considers the learning organization as an organization that uses individuals, values and other subsystems, constantly changing and improving its performance based on the lessons and experiences it gains. In this regard, the learning organization is an organization that helps to promote organizational learning by creating

structures and strategies. This organization has the skills and ability to create, acquire and transfer knowledge and modifies its behavior in a way that reflects new knowledge and perspectives. In a systematic definition, it is an organizational learning organization, which learns powerfully and collectively. It is constantly changing itself in such a way that it can better collect, manage and use information in order to succeed in the organizational set. It is a kind of group learning organization, in which learning is considered a constant need of all employees and in it, while emphasizing learning, how to learn, absorb and distribute new knowledge, it creates, produces information and required new knowledge and all this knowledge is reflected in the behavior and performance of the employees of that organization.

3- Learning environments in architecture and urban design

The notion of learning that is the acquisition of knowledge which is then tested, converted, stored for future use, and employed to make changed has been given too little attention in urban policy circles (Campbell, 2009: 195). For this purpose, in different urban global environments new tools and practices are changing the ways in which urban planners seek information to achieve socially sustainable outcomes (Fredericks & Foth, 2013), (Houghton et al, 2013) and (Caldwell et al, 2013: 11). In this way, work which specifically highlights 'space' or 'environment', the meaning is usually related to the ways in which teaching and learning are conceptualized or organized, rather than to do with physical arrangements (Avery 1994; Higher Education Funding Council for England, 2000) and (Temple, 2008: 229).

The city can be a powerful tool for teaching maturity and responsibility, collective life and citizenship, life planning and evaluation, and the capacity to collaborate in existing places and times. Defining new forms of learning that should be associated with high expectations. Not only to ensure up-to-date and vocational education, but also to promote awareness of active citizens to participate in social life, to develop places where citizens are responsible for their learning process. It ensures their lifelong learning and being able to acquire useful knowledge for a better social life. Learning cities are the product of the development of innovative structures and processes. In fact, learning cities explicitly use learning as a way to promote social cohesion, revitalization, and economic development that includes all sections of society through a range of resources that they bring together. In this regard, Longworth believes that in order to create and maintain a learning city, several main institutions in the city should function as learning institutions, which are: municipalities, schools, scientific and applied education centers, and private and medium and small organizations. These institutions are

mentioned as components for the learning city, such as: schools as learning organizations, adult scientific and applied education centers as learning organizations, universities as learning organizations, private organizations as learning organizations, and municipality (local government) as learning organizations (Longworth, 2006, 135).

More recent thinking on 'flexible' learning spaces – spaces in which different groups may be undertaking different activities simultaneously and which lend themselves to a variety of uses (Chism 2006; JISC, 2006) – has suggested how campus and building design can be used to facilitate learning, particularly informal learning. On the basis that much effective learning takes place as a result of interactions between students, designs need to provide a variety of spaces for them to work and socialize in together (Kuh et al. 2005, 206). The importance of creating human-scale learning environments features in the literature. 'Through buildings, signs, and the landscape of the campus, the physical environment communicates messages that influence students' feelings of well-being, belonging, and identity' – and so aids learning (Kuh et al. 2005, 106) and (Temple, 2008: 232).

Scottish Funding Council 2006, argued that seven types of learning space could be identified in further and higher education. These space types were for:

- group teaching and learning, where flexible furniture arrangements were needed to accommodate groups of varying sizes, using varying layouts, preferably in square rather than rectangular rooms (the former being more adaptable);
- simulated environments, where practical learning can take place in technological subjects or nursing, say, and requiring space for observation as well as for performing the task in hand;
- immersive environments, such as 'HIVES', highly interactive virtual environments, with advanced information and communications technology, possible in many subjects but more likely to be found in scientific or technological ones;
- peer-to-peer environments, where informal learning can take place, in cyber cafés, for example;
- clusters, where student group work can take place, for example in learning centers;
- individual work, in quiet areas;
- External work – areas outside the building suitable for individual or small group activity.

We should note, though, that similar ideas on new learning spaces have been under discussion for several decades (Barnett, 2000, 28).

Review of previous studies

Only a handful has employed learning concepts to examine cities. These last two focus on inter-network connections among the many regional organizations involved in planning and implementation, but neither has drilled down into intra-city political or sociological dynamics to illuminate the modes of learning, the use of knowledge, nor mechanisms of storage. Also, the cases have not examined the impact or influence, if any, that the husbanding of knowledge has on the creation of soft infrastructure and on competitiveness (Campbell, 2009: 196).

While there has been increased attention given to physical learning environments, including both formal teaching spaces and informal learning spaces (NGLS 2008), an evaluation framework to determine the impact of physical spaces on the student experience is lacking. Indeed, attempting to determine the impact of spaces is difficult given the multitude of factors that influence student learning and their experiences, from teaching methods to individual student differences (SFC 2006). In fact, the Scottish Funding Council report highlights the lack of studies that have explored the link between learning spaces, student outcomes, and the broader student experience (2006). The physical facilities on university campuses have been recognized as playing an important role in students' perceptions of the institution to the extent of being a factor in the selection process of prospective students (Price et al. 2003). There is a growing body of literature examining the design and development of formal and informal learning spaces, with most offering a set of guiding design principles (Jamieson et al. 2000; JISC 2006; Oblinger 2005). A recent project funded by the Australian Learning and Teaching Council attempted to define a framework for developing, designing and evaluating learning spaces, although the project revealed the complexities in evaluating spaces given the "significant number of variables beyond the spaces" (Radcliffe et al. 2008 p. 15).

Recently, a new model for exploring the student experience has come into prominence in the United States and Australia (Krause and Coates 2008; Kuh 1995). The student engagement model has been positively linked to student outcomes, satisfaction and even retention (Matthews, et al, 2009: 1).

Finally, we can refer to a research activity entitled 'Optimal Learning Spaces' (OLS) has been developed in conjunction with MCC. This project focuses on teaching and learning environments at the micro-level, rather than on educational policies, management or organizational structures. There are two elements to this project whose aim is to develop an evidence base for what constitutes an optimal learning space through: A thorough exploration and synthesis of the international literature on design issues related to schools with particular regard to the

sensory impacts of spatial variables on the learning process (Barrett, et al, 2009: 1).

Dimensions, components and characteristics of the learning environment

The emergence of the constructivist learning paradigm has led to a focus on learning rather than teaching. It allows us to reevaluate classrooms and to consider informal learning spaces as loci for learning. If learning is not confined to scheduled classroom spaces and times, the whole campus anywhere and at any time is potentially an effective learning space. That holistic view of learning presents challenges, however. First, the demands on student time and attention continue to grow. Second, learning doesn't just happen in classrooms; learning also occurs outside the lecture hall. New strategies for enabling learning and accommodating the multiple demands on student time have led to rethinking the use, design, and location of learning spaces ((Brown& Long, 2006): 9.1).

The emphasis on learning means that we must also think about the learner. Learning spaces are not mere containers for a few, approved activities; instead, they provide *environments for people*. Factors such as the availability of food and drink, comfortable chairs, and furniture that supports a variety of learning activities are emerging as critical in the design of learning spaces evidence of the second trend, giving consideration to human factors as integral to learning space design.

The rapidly increasing accessibility of digital technology also has changed learning space design. Enhanced access, in turn, has made it possible to implement a learning paradigm that emphasizes active learning, formative assessment, social engagement, mobility, and multiple paths through content (Brown& Long, 2006: 9.2). Today, facilities that encourage learner participation are increasingly important in learning space design. Active learning, interaction, and social engagement will be significant in the future (Brown& Long, 2006: 9.2). In the new education, the learner space is student-centered rather than teacher-centered. So that the teacher uses other sciences to better understand the problems in one science. The design of school spaces is such that includes visual-physical features, is ultimately flexible and has the ability to change the use at different times. Thus, any space for learning a science not only needs to overlap with other sciences, but also to overlap the body of spaces (Allison Arieff, 2014). In this regard, the continuous and uninterrupted interactions of humans with each other and with environmental resources help to learn more (Shariatmadari, 1987: 80). In designing learner and learning spaces, efforts should be made to adapt the environment to the needs of the learner. Not only do we have to force the learner to adapt to the environment, but also the environment should arouse the student's curiosity. Such a capability requires the flexibility of the environment.

Flexibility means the simplicity of variability in order to adapt and be suitable for the environment and its changes in different situations (Fisher, 2007, 88-79). This flexibility diversifies learning and increases students' desire to learn (Shaterian, 2008: 23). A flexible environment should be easily changeable in order to respond and be suitable for people and their changing needs, Provide different situations. The flexibility of the environment makes it dynamic. Each learning space accommodates different activities, each of these activities requires its own behavior and furniture. The library as an educational center is the social-educational center of the faculty, so any part of the university can have a small educational center attached to it¹

Each work placement sits within an organization where the opportunities for learning are influenced by personal, interpersonal, institutional, social and historical factors (Foley, 2004). With this purpose in mind, Learning can be formal, non-formal, informal and incidental (Foley, 2004). However, most workplace learning occurs informally, but consciously through experience, or incidentally and unconsciously (Eraut et al, 1998). This means that the measurement of learning and capturing individual learner progress is fraught with complexity (Kaider, et al, 2009: 497).

Based on what has been said so far, a learner urban space can be considered as having learning principles and social and active learning strategies, and also the emphasis on human-centered design is in the center of attention. In addition, learning in urban space can have the following categories (table2):

Table2: Types of learning in the learner urban space, reference: author

Types of learning in the learner urban space						
(Eraut et al, 1998)	Conscious learning		Un conscious learning			
((Brown & Long, 2006): 9.2).	Passive learning	Active learning	Passive learning	Active learning		
(Foley, 2004).	for mal	non-formal	info rmal	for mal	non-formal	info rmal

We now expect that learning will involve many different activities, each having different behaviors associated with it. This can make the learning center the most multifunctional of spaces. A large central

learning center in a university (JISC, 2006: 23). A learner is first and foremost engagement in a cultural practice that people have to learn to engage in such cultural practices, and that place has a distinctive role in cultural practice (Goodyear, 2008: 251). Flexible learning involves the loosening of logistical or educational constraints (Boot and Hodgson, 1987). The focus on learning places reflects a growing acknowledgment of the importance of the physical environment in influencing how people learn and what they learn (Bliss et al., 1999; Poysa et al., 2005; Singleton, 1998). "Flexible learning is enabling learners to learn when they want" (Goodyear, 2008: 253).

Flexibility as the most important characteristic:

Temporal flexibility includes such considerations as lifelong learning (i.e., that learning is not just restricted to the years of formal schooling). It refers to the freedom to learn when the need arises in the course of one's life, not just at the stages predetermined for the convenience of educational providers. Meso-level temporal flexibility operates on time spans of weeks and months. Flexibility on this scale allows the learner detailed control over the scheduling and pace of their learning activity, allowing them, for example, to "harvest fragments of time" for learning in an otherwise hectic schedule (Roberts et al., 2003). The spatial dimension of flexible learning refers to learning that takes place at locations that suit the learner (Goodyear, 2008: 253). Learning activity can have its roots in the needs and interests of the learner and emerge from (or be inseparable from) their ongoing work and life. Much conventional learning activity is strongly shaped by the existence and nature of assessment systems or by the goals of teachers and educational institutions. Flexible learning should make learning opportunities available to all those who wish to take advantage of them. Flexible learning need not be a solitary activity (Goodyear, 2008: 253). The thing to do is to change the environment and people will change themselves. Furniture plays a significant role in enabling a learning environment to be flexible. , combinations of circular and oblong tables, or palette chairs, as opposed to standard ones, will establish preferred uses of that space, so even in the most constrained circumstances, consideration of room layout and choice of furniture can make a significant difference to learning outcomes (JISC2006: 24-25). Learning environments should be developed by those who will use those (Brown & Long, 2006: 9.5). In this way, Social interactions such as debate, discussion, and teamwork, for example, encourage learning (Brown & Long, 2006: 9.3). So, the trend toward human-centered design is important in the learner urban space. If the constructivist model reflects how people learn, a more human-centered design of learning space is a

¹ <http://www.jisc.ac.uk>

positive change (Brown& Long, 2006: 9.5). In due course, an understanding of learn place qualities can then be conceived as a kind of cognitive anthropology of situated learning (Goodyear, 2008: 254).

Finally, a flexible learning environment can include the flowing goals, principles. Qualities, and characteristics:

The overarching goals of the learning spaces:

- To enhance the users experience;
- To develop an identifiable space for users;
- To foster vertical and horizontal social interactions (that is, between users);

- To increase positive, informal the varies of user's interactions;
- To build on social learning as a key to user's success; and
- To enable users to be part of a community resulting in a sense of belonging and identity (authors cited in Matthews, et al. 2009: 3).

The three main principles and their associated parameters that make up the Learning environment: (table3-5)

Table3: Learning principles and practical options (Barrett, et al, 2009: 3).

concept	principles	Description	parameters
Learning environment	Level of stimulation	Combinations of pleasantness and different levels of arousal yield either excitement or relaxation. When the level of stimulation is appropriate for given situations, certain reactions take place positively in the brain and mind, affecting mood, mental clarity and energy levels.	Texture
			Color
			Complexity
	Individualization	The brain function highlights the personal way in which individuals build connections between primary reinforces and complex representations of secondary reinforces.	Connection
			Flexibility
			Choice
	Naturalness	The emotional systems have evolved over the millennia in response to the natural environment. Spatial configurations, light, noise, heat and air quality have been consistently proved to have a significant impact on students' academic achievement and ability to perform.	Air quality
			Temperature
			Sound
			Light

Table4: urban Learning space qualities Reference: author.

quality	Indicator of any quality		
access	Achieve a high level of natural dispersion	Flexible access to, and interaction with high-quality	Ability to combine micro spaces
responsibility	Create diverse choices in the environment		
Flexibility	Existence of flexible space	Existence of flexible furniture and equipment	Creating flexible co-spaces
24-hour spaces	The Creating of the integrated and flexible 24-hour learning environment	Presence of 24-hour activities	Presence of 24-hour uses and shops
inclusion	Inclusive furniture for configuring to enhance interaction and communication	Create opportunities for group working, team building	The presence of all stratum of society in learning space for the purpose of learning activities
Security	space surveillance	The presence of Light and space and create a sense of openness	Safe and secure Lightweight, mobile furnishings
Interactivity	Creating social engagement and informal contact	Existence of potential to establish a sense of mutual respect	Creating the potential in space for generating interactions
The sense of belonging	Intercommunity in creating a sense of belonging to the space	Intercommunity in group work	Creating the potential in space for culture events

concept	characteristics
Learning environment characteristics	informal and formal spaces
	indoor or outdoor spaces
	physically active and/or passive techniques
	quiet and/or interactive periods
	public and private spaces
	social learning
	emotional learning
	virtual learning
	Mobile learning
	Ubiquitous or 'every ware' learning
	Social interactive learning
	Visual interactive learning
	Audio interactive learning
	Connected learning
	Supported learning
	Augmented reality

Table5: urban Learning space characteristics Reference: (author cited in Beard, C., 2009.6).

Conclusion

Based on the findings of theoretical issues in learning and human-environment relationship in various sciences, and also by relying on urban theoretical analysis and studies, dimensions, components, aspects, principles and criteria of the urban learning environments are presented (Table 6). Each urban space in the environment with a hierarchical view from top to bottom, is divided into components, including: body, function and movement, which in the next order each includes diminutive components. The relationship between these components and the dimensions of learning (at the desired level) is important in a way that can achieve a conceptual model of urban learning space (Figure 1).

The urban learning environment must have a network of body, function and other components of the environment, and in defining the learning environment, factors such as learning resources and technology, learning style and social relations and global concepts must be considered. In this regard, the criteria of an urban learning environment can be named multi-functional spaces, revitalizing communication paths and transition spaces, creating active and inactive spaces. Spatial transparency is important because it includes the possibility of attending all activities and not seeing the scope of activity alone.

on this detail, the relationship between inside and outside by extending the learning confine from closed-spaces to semi-open space, opened-space and transfer of the living spirit of nature in, as well as the fluidity of space with visual and physical permeability of space can be considered with positioning strategies in the direction of communication-based planning that an urban learning environment should be able to reallocate

spaces so that it can be reused in the future without physical changes and achieve to the sustainability of the urban environment for learning - in fact, urban learning environments should be forward-looking, Be economical, be creative. Another criteria in this field can be considered the relationship with a community which have different cultures so that members of the community are involved with the space of the learning center - the learning community.

In the field of learning, the relationship and impact of different dimensions of an urban learning environment cannot be ignored. The physical form is measured in learning environments with the aim of educational system, physical-mental mobility and development of social spirit .By mentioning this point, we can make the appropriate construction technology in order to understand the environmental and climatic conditions, architectural features with local identity of the region, as well as the use of design creativity to improve physical quality and aesthetic dimensions that are the factors in designing learning environments.

In this regard, vista, arena and privacy, texture, form and shape, light, thermal conditions, color, sound, human scale, proportions, size of space and furniture are the factors affecting the flexibility of urban learning environments. Flexibility is a key factor in designing learning environments so that flexibility in the learning environment occurs in three ways:

- (1) Flexible components, flexible environment.
- (2) Allocating expanded space for occurring multiple and different activities.
- (3) Integration of learning environment.

The main factor of growth and learning is activity, if the learning environments in the city have the necessary stimuli, in this regard, urban environments should provide a suitable environment for activities in this direction for all ages. The urban

learning environment should be dynamic and open and have flexible furniture (the presence of a mobile library and related furniture for teaching learning in urban environments) that leads to learning-based behaviors in urban environments. Learning can happen at all ages and for all stratum inclusion- so learning is not age specific.

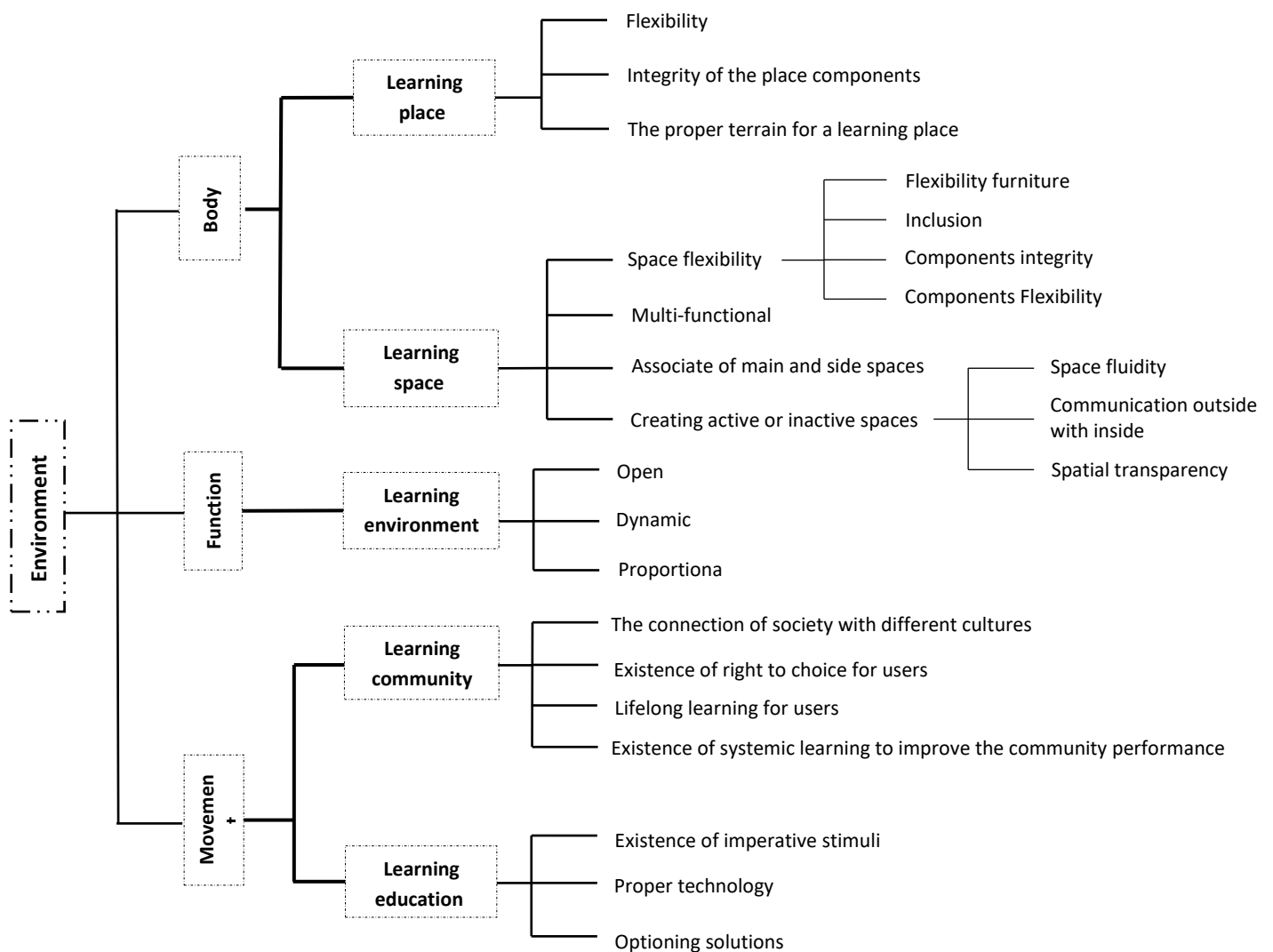
In this regard, leaving the decisions to the users of the environment, so that the environment is most influenced by the choices of individuals that is one of the requirements to reach urban learning environments. In urban learning environments, the

real needs of human beings are redefined and also the environments are designed and adapted to the learning needs. One of the needs in urban learning environments is the need for lifelong learning. Learning in urban environments should be based on a systematic and continuous process that changes and improves the performance of the learner community.

Table6: Identifying the dimensions, aspects, aspects, principles and criteria in the field of urban learning environment: References: Author

Environment	container	dimensions	components	aspects	principles	criteria
		mental	Education	Quality	Up to date stimulation	Proper technology Existence of imperative stimuli
					Legibility learning	Positioning solutions Existence of learning education for users
		Identical	Place	Quality	Flexibility	Flexibility of space components
					Integrity	Lack of uniformity of environment
					Diversity inclusion	Associate activities Presence of all age and sex groups
					Hierarchy	Existence of learning hierarchy
					Learning	Existence of learning place
			space	Quality	Flexibility	Existence of flexible micro-spaces
					Compatibility inclusion	Multi-functional space Presence of all age and sex groups
					Integrity	Lack of uniformity of environment
					Permeability	Communication outside with inside and existence of active and inactive spaces
					Fluidity	Visual and physical permeability of space
					Communicating	Associate of main and side spaces
					Sustainability	Reuse space in the future
					Hierarchy	Existence of learning hierarchy
					Learning	Existence of learning space

object	mental	community	Quality	Communicating	The connection of society with different cultures
				Variety	Existence of right to choice for users
				Continuity	Lifelong learning
				Learning	Existence of systemic learning and improvement of community performance
		Behavior	Quality	Dynamics	Existence of dynamic and open behaviors
				Proportion	Existence of the proportional behaviors with the environment
				Learning	Existence of the learning behaviors



Graph 1: conceptual model of the environment, identifying the components of the environment in relation to the components and factors of learning. Reference: author.

References

1. Arieff, Allison, (2014), to inspire learning, Architects Reimagine learning spaces, mindshift.
2. Avery, J. 1994. Strategic planning. In Managing educational property, ed. D. Warner and G. Kelly. Buckingham, UK: Society for Research into Higher Education and Open University Press.
3. Barnett, R. 2000. Realizing the university: In an age of supercomplexity. Buckingham, UK: Society for Research into Higher Education and Open University Press.
4. Barrett, P.S. and Zhang, Y., 2009. Optimal learning spaces: Design implications for primary schools.
5. Beard, C., 2009. Space to learn? Learning environments in higher education. Hospitality, Leisure, Sport and Tourism Network: Enhancing Series: Student Centred Learning, 1-11.
6. Bliss, J., Saljo, R., and Light, P., Eds. (1999). Learning Sites: Social and Technological Resources for Learning. Oxford: Elsevier.
7. Boot, R. and Hodgson, V. (1987). Open learning: meaning and experience. In Beyond Distance Teaching: Towards Open Learning, edited by V. Hodgson, S. Mann, and R. Snell, pp. 5–15. Buckingham: Open University Press.
8. Brown, M. and Long, P., 2006. Trends in learning
9. space design. Learning spaces, 9, pp.1-9.
10. Caldwell, G.A., Foth, M. and Guaralda, M., 2013.
11. An urban informatics approach to smart city learning in architecture and urban design education. IxD&A (Interaction Design and Architecture (s)), 17(summer), pp.7-28.
12. Campbell, T., 2009. Learning cities: Knowledge,
13. capacity and competitiveness. Habitat International, 33(2), pp.195-201.
14. Chism, N. 2006. Challenging traditional
15. assumptions and rethinking learning spaces. In Learning spaces, ed. D. Oblinger. Washington, DC: Educause.
16. Cook, J., Mor, Y., & Santos, P. (2020). Three cases of hybridity in learning spaces: Towards a design for a Zone of Possibility. British Journal of Educational Technology.
17. Damsa, C., Nerland, M., & Andreadakis, Z. E. (2019). An ecological perspective on learner-constructed learning spaces. British Journal of Educational Technology, 50(5), 2075-2089
18. Ellis, R. A., & Goodyear, P. (2016). Models of learning space: integrating research on space, place and learning in higher education. Review of Education, 4(2), 149-19
19. Eraut, M. E., Alderton, J., Cole, G. & Senker, P. (1998). Development of Knowledge and Skills in Employment. University of Sussex, East Sussex, UK.
20. Falmagne, J. C., & Doignon, J. P. (2010). Learning spaces: Interdisciplinary applied mathematics. Springer Science & Business Media
21. Faris, R., 2006. Learning cities: Lessons learned. Support of the Vancouver Learning City Initiative.
22. Feygina, I. (2013). Social justice and the human–environment relationship: Common systemic, ideological, and psychological roots and processes. Social Justice Research, 26(3), 363-381
23. Foley, G. (2004). Introduction: The state of adult education and learning in Foley, G. (ed.) Dimensions of Adult Learning: Adult education and training in a global era. Allen and Unwin, Crow's Nest, NSW..
24. Fredericks, J., Foth, and M.: Augmenting public participation: enhancing planning outcomes through the use of social media and web 2.0. Australian Planner, pp. 1--13 (In Press) (2013).
25. Garvin, D. A. (1993). Building learning organization. Harvard Business Review, 71(4), 78–91.
26. Goodyear, P., 2008. Flexible learning and the architecture of learning places. Handbook of research on educational communications and technology, pp.251-257.
27. Harrop, D., & Turpin, B. (2013). A study exploring learners' informal learning space behaviors, attitudes, and preferences. New Review of Academic Librarianship, 19(1), 58-77
28. Hassink, R., & Klaerding, C. (2012). The end of the learning region as we knew it; towards learning in space. Regional Studies, 46(8), 1055-1066
29. Hergenhahn, B.R., 1934, an introduction to the history of psychology, 6th ed, Australia; Belmont, CA: Wadsworth Cengage Learning, c2009.
30. Higher Education Funding Council for England. 1998. Building repairs and maintenance study in the higher education sector: Management review guide (98/31). Bristol, UK: HEFCE. 2000. Strategic planning in higher education: A guide for

- heads of institutions, senior managers and members of governing bodies (00/24). Bristol, UK: HEFCE.
31. Houghton, K., Miller, E., Foth, and M.: Appropriating digital technologies for urban planning: information and communication tools, Australian Planner, (In Press) (2013).
 32. Hutchinson, F. P., & Herborn, P. J. (2012). Landscapes for peace: A case study of active learning about urban environments and the future. *Futures*, 44(1), 24-35
 33. Jamieson, P., Fisher, K., Gilding, T., Taylor, P., and Trevitt, A. (2000). Place and space in the design of new learning environments. *Higher Educ. Res. Dev.*, 19, 221-236.
 34. JISC. (2006). "Designing spaces for effective learning: a guide to 21st century learning space design", http://www.jisc.ac.uk/uploaded_documents/JISClearningspaces.pdf, (ed.). City: Joint Information Systems Committee.
 35. Jones, M.E., 2010. The social movement of spiritually engaged alternative education in Thailand against the background of reform and globalization. Universal-Publishers.
 36. Kaider, F., Henschke, K., Richardson, J. and Kelly, M.P., 2009. Designing blended spaces to maximise student learning in work integrated learning programs. Same places, different spaces, pp.496-505.
 37. Kimble, G. A. (Ed.). (1961). Hilgard and Marquis' "Conditioning and Learning." Appleton-Century-Crofts.
 38. Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of management learning & education*, 4(2), 193-212.
 39. Kolb, D.: Learning places: Building dwelling thinking online, *Journal of Philosophy of Education*, 34(1), pp. 121--133 (2000)
 40. Krause, K. L., and Coates, H. (2008). "Student engagement in first-year University." *Assessment and Evaluation in Higher Education*, 33(5), 493-505.
 41. Kuh, G. D. (1995). "The other curriculum: out-of-class experiences associated with student learning and personal development." *Journal of Higher Education*, 66.
 42. Kuh, G., J. Kinzie, J. Schuh, and E. Whitt. 2005. Student success in college: Creating conditions that matter. San Francisco: Jossey-Bass.
 43. Longworth, N., 2006. Learning cities, learning regions, learning communities: Lifelong learning and local government. Routledge.
 44. Matthews, K.E., Adams, P. and Gannaway, D., 2009, May. The impact of social learning spaces on student engagement. In Th annual Pacific Rim First Year in Higher Education conference, Townsville, Qld. Retrieved February (Vol. 13, p. 2010).
 45. Naghizadeh, Mohammad, (2010), Principles of Urban Design, Urban and Rural Management Research Institute, University Jihad Culture and Art Research Institute.
 46. NELSON, A. (2006). American Heritage Dictionary.
 47. NGLS. (2008). "Next generation learning spaces colloquium", <http://www.uq.edu.au/nextgenerationlearning/space/colloquium-2008>, (Ed.). City.
 48. Oblinger, D. (2005). "Leading the transition from classrooms to learning spaces." *EDUCAUSE Quarterly*, 1, 14-18.
 49. Oblinger, D., & Lippincott, J. K. (2006). Learning spaces. Boulder, Colo, EDUCAUSE, c2006. 1v. (various pagings): illustrations
 50. Poysa, J., Lowyck, J., and Hakkinen, P. (2005). Learning together 'there'-hybrid 'place' as a conceptual vantage point for understanding virtual learning communities in higher education context. *PsychNol. J.*, 3(2), 162-180.
 51. Price, I., Matzdorf, F., Smith, L., and Agahi, H. (2003). "The impact of facilities on student choice of university." *Facilities*, 21(10), 212-222.
 52. Radcliffe, D., Wilson, H., Powell, D., and Tibbetts, B. (2008). "Designing next generation places of learning: Collaboration at the pedagogy-space-technology nexus" <http://www.altc.edu.au/resource-designingnext-generation-places-learninguq-2008>. City.
 53. Razavi, M. N., & Iverson, L. (2006, November). A grounded theory of information sharing behavior in a personal learning space. In *Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work* (pp. 459-468).
 54. Roberts, J., Beke, N., Janzen, K., Mercer, D., and Soetaert, E. (2003). *Harvesting Fragments of Time: Mobile Learning Pilot Project*. Toronto: McGraw-Hill (http://www.mcgrawhill.ca/college/mlearning/mlearn_report.pdf).
 55. SFC. (2006). "Spaces for learning: A review of learning spaces in further and higher education", http://www.sfc.ac.uk/publications/spaces_

- for_learning_report.pdf, (Ed.). City: Scottish Funding Council.
56. Shariatmadari, ali,(1987), educational psychology, publication of "amirkabir", led, Tehran.
 57. Shaterian, reza, (2008), design and architecture of educational spaces, publication of "Simae danesh", Tehran.
 58. Singleton, J., Ed. (1998). Learning in Likely Places: Varieties of Apprenticeship in Japan. Cambridge, U.K.: Cambridge University Press.
 59. Taylor, C., Pollard, S., Rocks, S., & Angus, A. (2012). Selecting policy instruments for better environmental regulation: a critique and future research agenda. *Environmental Policy and Governance*, 22(4), 268-292
 60. Temple, P., 2008. Learning spaces in higher education: an under-researched topic. *London Review of Education*, 6(3), pp.229-241.
 61. Trieb, M.:Stadtgestaltung – Theorie und Praxis In: Bauwelt-Fundamente Band 43., Düsseldorf 1974.
 62. Watkins, K. E., & Marsick, V. J. (1996). In action: Creating the learning organization. Alexandria,VA: American Society for Training and Development.
 63. Ford, P., Goodyear, P., Heseltine, R., Lewis, R., Darby, J., Graves, J. et al. (1996). Managing Change in Higher Education: A Learning Environment Architecture. Buckingham, U.K.: SRHE/Open University Press.
 64. Slack, R., Tudhope, D., Beynon-Davies, P., and Mackay, H. (1996). Working from the Learnplace, Learning from the Workplace: Some Thoughts on the Role of the Ethnographer in the Production of Ethnographic Accounts, No. CSRP 428. Brighton, U.K.: University of Sussex
 65. Jamieson, P., Fisher, K., Gilding, T., Taylor, P., and Trevitt, A. (2000). Place and space in the design of new learning environments. *Higher Educ. Res. Dev.*, 19, 221–236.
 66. Barnes, C.J., 2006. Preparing preservice teachers to teach in a culturally responsive way. *Negro educational review*, 57.
 67. Douglas, V.I.(1972), stop, look and listen: the problem of sustained attention and impulse control in hyperactive and normal children, *Canadian journal of behavioral science / revue Canadian des science du comportement*, 4(4), 82-259.
 68. Fisher, k, 2007, teaching thinking to children, translated by: Masood safai moghadam and afsane najarian, ahvaz, rasesh publishing.
 69. MacPhee, L. (2009), "Learning spaces: A tutorial", *EDUCAUSE Quarterly*, Vol. 32 No. 1, (accessed 24 October 2010).
 70. Neisser U. *Cognitive Psychology*. New York: Appleton-Century-Crofts; 1967. Rapaport, A. (1982). *The meaning of the built environment*. Thousand Oaks, CA: Sage.