Architects are Talking about Space

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Pelin Dursun
Istanbul Technical University, Faculty of Architecture, Istanbul, Turkey
dursunpe@itu.edu.tr

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Abstract
Space is the core of architecture. In order to design, it is necessary to conceive and think about architectural space surrounding us by decoding its nature and discovering messages in its built forms. This kind of awareness helps architects to decide on the principles and concepts of his/her desired space. Critical questions arise at this point: How do architects perceive and conceptualise architectural space? How do architects understand and decode space? How do they think and talk about space? Space is more than a simple vacuum that surrounds us. First, it has its physical form that can be easily decoded and described by concrete characteristics such as length, width, scale, geometry and also texture, colour, light, etc. Second, it has other characteristics that are abstract and complex, and difficult to talk about. These are codes, rules and abstract parts shaping meaningful things in space. In understanding and discovering these spatial characteristics, key element appears as the man-space relationship. The aim of this paper is to create a debate by focusing on the following questions which are discussed in the first lecture of an elective course at undergraduate level, namely, Architectural Morphology, in Istanbul Technical University, Faculty of Architecture: How do architects conceive and conceptualise space? How do architects understand and decode space? How do architects express meaning in space? How do architects think and talk about space? Student profiles of this research are formed within the 2007-2008 and 2008-2009 academic year. Students are asked to describe and talk about their living spaces by using their own architectural background without being lectured in any form. They are expected to record their mental processes and clarify the characteristic elements of their languages. The records emphasise the complex nature of this discussion in terms of architecture, design, space and its meaning. During the discussion, the aim is to structure the language that they use to talk about space. By identifying personal and general expressions, it is attempted to decode the elements of how designers think and how it is possible to transform their mental processes, from abstract forms into concrete expressions. In the last part of the study, contribution of space syntax to form a language for thinking and talking about space is discussed. By emphasizing this scientific, mathematical language focusing on man-environment relationship, it is possible to make non-discursive characteristics of space discursive and put the space into a more extensive debate.

1. Introduction

Space is the core of architecture. In order to design, it is necessary to conceive and think about architectural space surrounding us by decoding the characteristics of its nature and discovering messages revealed via its built form. This is the way how an architect is aware of the spaces that surround him/her. In other words, this is a kind of a discovery process which helps the architect to construct and enrich his/her understanding of space and spatial experiences. These recorded, collected, described and even reproduced experiences then form the core of his/her spatial knowledge and act as the activator of the design process by leading architects to decide on the principles and concepts of the space desired by. According to Kurtuncu, et al, spatial knowledge stemming from spatial experience act as a network interwoven between interrelated concepts such as body, scale, proportion, experience, perception, atmosphere, senses, time, memory, context, light, structure, materials, architectonics, spatial articulation and syntax etc. (Kurtuncu, et al, 2008). If we accept design as a kind of sophisticated mental process capable of manipulating various

kinds of information (Lawson, 2003), and space as key element of this process or a laboratory which contains the base of such an information, critical questions arise: How do architects perceive and conceptualise architectural space? How do architects understand and decode space? How do they think and talk about space?

In architecture there is a common approach in which spaces are conceived and evaluated by focusing on their physical appearances and formal characteristics and classified under a specific architectural style. This approach disregards those characteristics such as man-space relationship and their social implications which are the key elements forming architectural space and its identity.

Space is more than a simple volume that surrounds us. First, it has its physical form that can be easily decoded and described by its concrete characteristics such as length, width, scale, geometry and also texture, colour, light, etc. Second, it has other characteristics that are abstract and complex, and difficult to talk about. These are codes, rules and abstract parts shaping meaningful things in space. In understanding and discovering these spatial characteristics, the key element appears as the man-space relationship.

According to Proshansky, the physical environment that we construct is more a social phenomena than physical one, (Proshansky, 1970). Lefebvre defines space as a social product (Lefebvre, 1998). According to him, space is modified by social relations; it is not only supported by social relations but also produced by social relations. Lawson defines architectural and urban space as containers to accommodate, separate, structure and organize, facilitate, heighten and even celebrate spatial behaviour. Space creates settings which organize our lives, activities and relationships (Lawson, 2005). According to Hillier space is never simply the inert background of our material existence. It is a key aspect of how societies and cultures are constituted in the real world, and, through this constitution, structured for us as 'objective' realities. Space is more than a neutral framework for social and cultural forms. It is built into those very forms. Human behaviour does not simply happen in space. It has its own spatial forms, (Hillier, 1996). Markus implies that buildings are treated as art, technical or investment objects, rarely as social objects, (Markus, 1993). He suggested that people discover and create meaning in social relations, and that these form and are formed by their social practices- the things they do together. Designing and producing buildings are social practices. Similar with Markus statement Hillier indicates that buildings carry social ideas within their spatial forms. Spaces are key aspects of how societies and cultures are constructed in the real world, (Hillier, 1996).

This paper tries to generate an understanding of how architects conceive and decode architectural space and clarify their tools in talking about space by the help of student course works from an architectural school. The ways in which they comprehend and express architectural space and the selected tools and methods are illuminated by visual and textual documents that the student produced. In the last part of the study, contribution of space syntax to create a language for thinking and talking about space is discussed.

2. Case Study: Talking more about our Living Spaces

The aim of this paper is to provoke a debate by focusing on the following questions which are discussed in the first lecture of an elective course at undergraduate level, namely Architectural Morphology, in ITU Faculty of Architecture:

How do architects understand and decode space?

How do architects express meaning in space?

How do architects think and talk about space?

Student profiles of this study are formed within the 2007-2008 and 2008-2009 academic year. The students are asked to describe and talk about their living spaces by using their own architectural background without being lectured in any form. They are expected to record their mental processes and clarify the characteristic elements of their languages. During the discussion, the aim was to structure the language that they use to talk about space by decomposing its components. By identifying personal and general expressions, it is attempted to decode the elements of how designers think and how it is possible to transform their mental processes, from abstract forms into expressions of concrete kind.

S	T 1 about space	understanding and decoding space –keywords-vocabularies of spatial language physical characteristics	 codes, rules, meanings	 tools
A	"When we are trying to conceive space, we cannot comprehend it by thinking about it separately from its users, such as people, animals, plants, etc. …It is clear that we cannot think any space without its people. … It is very difficult to understand and talk about space in which there is no inhabitant or the footprints of its inhabitants. …In design process, space is elaborated by considering movement/immobility, spatial flow and relations. …Language is generated via letters and humans are built from DNAs. Similarly, we can presume that space has its own DNAs and we cannot talk about it without decoding them."	. design criteria such as proximity/distance comfort convenience openness/closeness bigness/smallness . geometry . natural light level . proportion (thin and long corridor) . length-width (corridor by 13m long-89cm width) . typology (a house with 3rooms, 1 liv room)	. inhabitants desired spatial relations . man-space relationship . movement, flow, spatial relations . spending time in space . enjoyment in space . colourfulness of space . use density in space . liveliness of space . changeability of space . soundness of space	**3d –model, diagrams, sound records,** verbal expressions,written expressions, line expressions /drawings, maps, numerical expressions
B	"We need not only look at the instant situation of space but also at its changing characteristics which occur in a period of time. Because space is formed by a number of components coming together in a specific period of time ….Space can be perceived by different users differently. Space is formed by the needs of users, their preferences, requirements and movement patterns. In other words, space is personalized or individualized by its users."	. sound . colour . texture . light . typology (dublex, 2 storey building) . size . circulation elements (stairs as a key element of movement and interaction)	. changes that occurred in time . movement . spatial relations . space use, frequency of use	**3d-model, diagrams,** maps
C	"We try to understand space either by its physical characteristics or by our personal feelings about it (memories, judgements, moral values, etc.)"	. walls, boundaries, surfaces, ceilings	. user's sounds . spatial use . personal spaces . perceptional boundaries . places for privacy . places for common use . spatial relations (a corridor and rooms attached to it) . inhabitants' footprints (furniture, personnel belongings) . spatial thresholds (corridor for social interaction, individual rooms for privacy)	**3d-model, diagrams**
D	"Sense of belonging to any space and its spatial description are two different topics. ….First one is a result of subjective feelings that space imposes on us but it does not affect the definition of that space. …Key element in formulating spatial definition is not an individual point of view but personal behaviour occurring in that particular space….We can move by the help of spatial relations… We can understand space by moving and living in that space… Borders and syntax of space affects our way of living… Home is described by spatial relations."		. spatial relations . man-space relationship . movement . speed (taking the shortest and easiest route between spaces)	**diagrams**
E	"Assigning a meaning to a particular space shows subjective characteristics. However my opinion on this subject is that spatial meaning is formulated not only by the five senses but also by other elements that are connected to space such as man-space relationships. Formulating a spatial expression is not an effort to give a new meaning to space but is an effort to discover this existing meaning in that particular space."	. forms that shape 3d object . distribution of light . texture . material . colour . function . length	. circulation . new meanings . use density in space . use habits	**sketches, expressions, diagrams, written expressions line /drawings**
G	"…Space is a living area and encaves a life. In order to make a space meaningful, it is necessary for a human being to exist in this space. Life of inhabitants and footprints of this life on space give meaning to that particular space. In order to decode space, it is essential to understand how spaces come together and how they provide potential areas for movement or stability. …When we are perceiving space we can observe that spaces are related to each other rather than existing as independent, individual units and these relations have influences on the location and formation of those spaces.	. natural light . size . function . sound . location	. spatial organization . spatial relations . orientation . man-space relationship . user footprints how do they use space? how do they locate in space? . space use . movement density of movement	**digital records, photography**

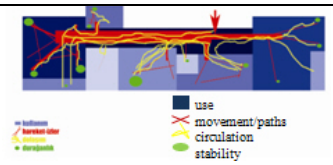
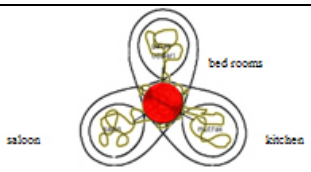
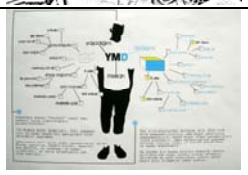
Table 1

Student Works

S	T 2 about space	understanding and decoding space –keywords-vocabularies of spatial language physical characteristics	 codes, rules, meanings	 tools
H	"…Our desire to be in a particular space is effected not only by functions but also by our feelings concerning these spaces…Tools for perceiving space are mainly visual… Plan, section or in other words geometry has been used as tools both for designing, decoding and giving meaning to a space. Representing a space requires abstraction. Meaning of a space can be decoded even only by looking at plans but here some characteristics can be undervalued. Nowadays by making spatial representation much closer to its real situation with 3d modelling programmes, the defects of this abstraction are reduced. …Our spatial perception or decoded spatial meaning must be transformed into a visual language rather than to a verbal language in order to communicate."	. day and night effect . colour . perspective . changing sections . topography . light . speed . smell		maps, diagrams, **digital records, photography, mage**, film
I	"…In building the conception of a space which I call home, I noticed that my priority is the way how I am related to that space rather than its structural characteristics. Main factors that create these relations are events or activities and their footprints that occur within time at home. …The thing that creates a space is the existence of the human being and man to man relationships. Person, footprints related to his/her life, memories, etc. make that space lively and meaningful."	. structural characteristics	. course of existence . memories . user footprints . events/ their footprints . man-man relationship . man-space relationship	**maps, diagrams, written expressions**
J	"…Definition of space differs among people and shows a subjective character. …Space is not explored by the 5 senses merely. …Movement of dwellers is dictated by the order and location of space. This means that rules are made by the space itself."	. function/activity . furniture /belongings . size	. movement . man-space relationship	**photography, written expressions**
K	"…The thing that makes my living space is those parameters that we fit to it. …First, size or dimensions is important. In other words it is necessary to determine wideness of space which will be sufficient enough for us to live in."	. size (3x5x2.4 / 3x5x2.5) . location . level of light . form . furniture . noise . warm in summer cold in winter . on south/on southeast . narrow street . slope / flat . 20 minutes to station . good neighbourhood . 8 years old	. room mate . neighbour relations . garbage collecting time	**diagrams, written expressions**
L	"…My living space has a flowing character. It is at the centre of the house… There are no borders in my living space; there are relations with other spaces, in other words continuous communication with other spaces. This communication creates diversity both for me and for my living space."	. sound . smell . light . cold weather . textures	. thousands of people . unexpected user . circulation / fluidity . spatial relations, communication between spaces, traffic . speed of life . user footprints	**diagrams, written expressions**
M		. personal belongings, objects, television, music et cetera . food, beverage . space itself	. activities sleeping, having a rest	**poster, written expression**
N	Spatial expression involves subjectivity and abstraction.		. complexity . polyphony . multi-layered	**collage**
O		. activities / hostel . personal belongings	. rules – living pattern . preventions . man-space relationship	**collage, written expressions**

Table 2

Student works

S	records…			
A			J	
B			K	
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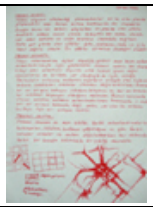
E			N	
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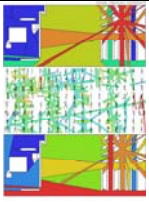
I				

Table 3

Student records

Selected works of 15 students are summarized in Table 1, 2 and 3. In these tables the students' statements about space, the keywords or vocabularies of their languages, their tools for expressing space and records are brought together to see the picture as a whole.

Keywords that students use to describe their living spaces are analyzed and grouped into two:

1. The keywords that try to explore physical characteristics of space.
2. The keywords that intend to express the meaning of space.

Students use these two groups of vocabularies with differentiating priorities. While some of them mainly talk about space by the help of first group of keywords, others talk about space by the keywords of second group. There are some students who try to balance or intend to create interrelations between the two. In other words, their expressions become meaningful only by combination of the two.

First group mainly comprises these keywords that include geometry or form, size, dimension (length and width), proportion, level of light and sound, colour, texture, and function. Structural elements (walls, surfaces, etc.), furniture, personal belongings are in this group as well. Second group specifically talks about men-space and man-man relationship and spatial organisation. Movement, flow, space use, frequency of use, user footprints are repeating keywords in their spatial language.

The records emphasise the complex nature of this discussion in terms of architecture, design, space and its meaning. Students use different tools such as 3d models, diagrams, sketches or line drawings, photography, sound records or written expressions, and collages to represent their living environment.

Most of the students believe that the way which architects use to understand and decode space shows subjectivity rather than objectivity. The five senses play an important role in this process. This individuality is reflected on their records and their spatial language. Still, there are other students who differentiate the sense of belonging to a space and that of description of space. According to their view, former shows subjective characteristics and latter objective characteristics. For them, our discussion doesn't focus on an individual point of view but must reveal universal expressions.

The students come into an agreement that abstract knowledge related to space must be transformed into concrete form in order to be comprehensive debated on. However, it is observed that they don't know the means of doing it in this way.

The students mainly talk about man-space and man-man relationship in space, which are the basic elements decoding the meaning of that particular space. However, it is observed that they don't know how to formulate this knowledge in an universal, scientific language.

3. Space Syntax: A Tool for Decoding Social Knowledge in Space

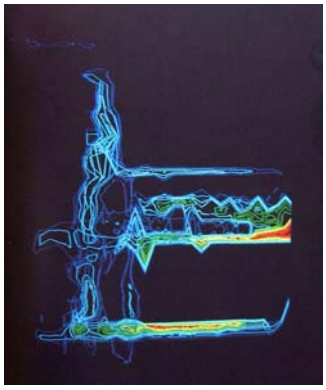
Space syntax is an approach which defines built environment as a spatial network formed by interrelated spatial units and aims to decode and visualize invisible social knowledge in the space. The main effort here is given to explicate the hidden and abstract social information by transforming it to concrete, measurable form by implementing mathematical and graphical tools. By doing it this way, it also provides a new language to talk about space. The basic concern of this scientific and research based approach is about rules and meanings revealed via space which are a result of man-space relationship rather than spatial form and spatial dimensions. It focuses on social instead of physical.

According to Hillier and Hanson, all human activity through which culture is created, has come to be seen as grounded in an interplay between concrete elements and abstract relations. These elements - words, columns, behaviours and so on - are present to conscious thought are

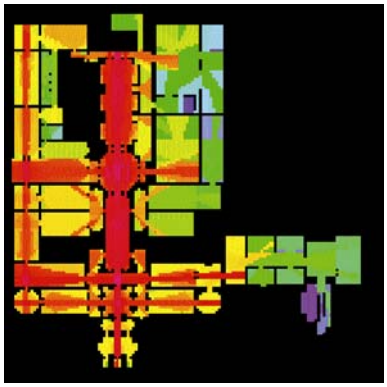
manipulated with deliberate forethought. Relational schemas through which we order and interpret elements - syntax, rules, and schematic drawings - are handled unconsciously, and we deal with them without thinking of them. Hillier and Hanson define concrete elements as the ideas which we think of, relational schemes as the ideas which we think with (Hillier, Hanson, 1997).

Space syntax research is reason based, and more rigorous than most, but it has effectively led to the study of architectural intuition (of architectural "ideas to think with") through its creations. In practice, design proceeds by a combination of intuition and reason. It is non-discursive where necessary, discursive where possible. Space syntax makes the deployment of non-discursive intuition more rational and therefore more discursive (Hillier and Hanson, 1997).

Basic concern of space syntax is about the nature of everyday spatial movement; the lived experience of how, in fact, such movement can even happen; the ways in which people, as they move about, are aware or not aware of their environment and about other people who are co-present; the ways in which people, as they move about, attentively encounter each other (or do not); the ways in which particular spatial configuration of pathways afford particular patterns of movement and encounter and how these patterns, in turn, contribute to and sometimes shift pathway of spatial configuration over time (Seamon, 2008).



UN Studio, UCP Mainport; Utrecht, 1997
Flow diagram including peak movements
(Berkel, Boss, 1999)



Space Syntax, Tate Britain, UK, 2002
Movement Traces and VGA Analysis
(Space Syntax, 2002)

Figure 1
Movement in space, two different visualizations

4. Conclusion

Student works reveal two different languages in use that architects prefer to talk about space.

1. Talking about space by focusing on the physical characteristics which can be easily captured or seen from outside. Here, space is described via formal or structural elements, their dimensions and characteristics, such as length, size, walls, surfaces, light, sound, etc. There is no concern about the people who inhabit it. Space is thought to have a static character and its definition is concrete and easy to formulize. Numbers, words, visual and sound records are use to describe space. One knows how to describe and talk about these characteristics of space, Table 4.

2. Talking about space by focusing on the logics of space which cannot be easily captured or seen from outside. Here, space is described by analysing its relational elements and their social meanings such as man-environment relationship and spatial movement. It aims to discover the invisible characteristics of space and tries to tell more than physical characteristics of space. It focuses on man-environment relationship and reveals about the architectural potentials that a particular space provides. Telling more about man- man and man-space relationship reveals the social, cultural characteristics and those spatial rules which are thought to be hidden in that space.

Here, space is dynamic and its definition is abstract and not easy to represent. We use different tools such as 3-d models, photos, words or texts, diagrams, sound records to describe this space. We are aware of but we don't know how to describe and talk about these characteristics of space.

Talking About Space via	
physical properties	**its logics**
quantified by measuring devices which do not depend on human agency	quantified by measuring devices which depend on human agency
describing spatial elements and their individual characteristics	describing spatial relations, their potentials and meanings
concrete	abstract
formal, dimensional, physical	rule or code based, logical, social
looking from outside	looking from inside
visible	invisible
easy to measure	difficult to measure
easy to talk about	difficult to talk about
discursive	non-discursive
static	dynamic

Table 4
Two different approaches that talk about space

Most of the students have pointed out that space is a living domain and contains a life in it. Their records emphasize the importance of man-space, man-man relationships in space by accepting space as a dynamic, living organism. Main contribution of space syntax in design thinking is to provide them an analytic, scientific and concrete tool to decode this abstract meaning thought to exist in space and create a universal language. In other words, it shows an effort to make invisible, non-discursive characteristics of space discursive and puts the space into a more extensive debate by emphasising on a scientific, mathematical language and on man-environment relationship. Although this language is not familiar to architects, records also show surprising attempts which are very similar to ones that space syntax uses. Here, it is suggested that the approaches and the tools which students unconsciously use are important elements of their design thinking and representing and for their languages to conceive and talk about space.

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