ENVIRONMENTAL PSYCHOLOGY DISCOURSE IN ARCHITECTURE: CURRENT STATUS IN TURKISH ARCHITECTURE EDUCATION

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submitted by **SEZEN MERT** in partial fulfillment of the requirements for the degree of **Master of Science in Architecture Department, Middle East Technical University** by,

Prof. Dr. Halil Kalıpçılar
Dean, Graduate School of **Natural and Applied Sciences** _____

Prof. Dr. F. Cânâ Bilsel.
Head of Department, **Architecture** _____

Prof. Dr. İnci Basa
Supervisor, **Architecture, METU** _____

Examining Committee Members:

Assoc. Prof. Dr. Mustafa Haluk Zelef
Department of Architecture, METU _____

Prof. Dr. İnci Basa
Architecture, METU _____

Prof. Dr. Şule Taşlı Pektaş
Department of Architecture, Başkent University _____

Date: 03.09.2019

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Surname: Sezen Mert

Signature:

ABSTRACT

ENVIRONMENTAL PSYCHOLOGY DISCOURSE IN ARCHITECTURE: CURRENT STATUS IN TURKISH ARCHITECTURE EDUCATION

Mert, Sezen
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In a world that gets more and more industrialized every day, human factors fade into background in various fields. Architecture is one of those fields that suffer from this. When architects started to prioritize concerns such as form, function, aesthetics or economics, and neglect human psychology to some extent, rupture of human and design interaction transpired. This rupture can be overcome through embracement and absorption of the human psychology and usage of it to create sufficient spaces. In order to create satisfactory environments comprehending the effects of the built environment on humans and the interaction between design and its users is essential. To achieve this, one should understand environmental psychology as a critical component within architecture. Thus, the aim of this study is to uncover the importance of environmental psychology for architecture field through analyzing the role of it and their discursive interaction. Environmental psychology is an extensive study field which has broad potential, yet it is not well known beyond its own journals and publications. It is exceedingly overlooked within architecture field despite its importance in understanding human and place interaction and architecture would be incomplete without absorbing this relationship within its own discourse. Education is a crucial medium to initiate the embracement. Therefore, it is important to integrate the discursive outcomes of these two fields to architecture education. This way

architects will inevitably embrace a psychological point of view that will guide them through their designs and the built environment will be more compatible with human needs.

Keywords: Environmental psychology, Discourse, Discourse analysis, Architecture education, Syllabi

ÖZ

MİMARLIKTA ÇEVRE PSİKOLOJİSİ SOYLEMİ: TÜRK MİMARLIK EĞİTİMİNDEKİ MEVCUT DURUM

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Gün geçtikçe endüstriyelleşen dünyada, insan unsurları çeşitli alanlarda istemsiz bir şekilde geri plana atılmaya başlandı. Mimarlık da bundan muzdarip alanlardan biridir. Mimarların form, işlev, estetik, ekonomi gibi konulara öncelik vermeye ve insan psikolojisini bir ölçüde göz ardı etmeye başlamaları insan ile tasarım arasındaki etkileşimin bozulmasına neden oldu. İnsan psikolojisini benimseyip, bu bilgiyi elverişli mekanlar yaratmak için özümsemek bu bozulmanın üstesinden gelmek adına önemli bir etmendir. Yapılı çevrenin insan üzerindeki etkilerini ve tasarım ile kullanıcıları arasındaki etkileşimi kavramak, tatmin edici çevreler tasarlamak için vazgeçilmezdir. Bunu gerçekleştirmek için, çevre psikolojisinin mimarlığın kritik bileşenlerden biri olarak algılanması gerekir. Böylelikle, bu tezin amacı, çevre psikolojisinin rolünü ve söylemsel etkileşimini çözümleyerek, mimarlık alanı için olan önemini açığa çıkarmaktır. Çevre psikolojisi geniş potansiyele sahip kapsamlı bir çalışma alanı olmakla birlikte, kendi dergi ve yayınlarının ötesinde iyi bilinmemektedir. Çevre psikolojisinin insan ve mekan etkileşiminin anlaşılmasındaki önemi büyüktür. Mimarlığın bu etkileşimi kendi söylemi içerisinde özümsemediği sürece tamamlanmış sayılamayacağına rağmen oldukça gözden kaçan bir alandır. Eğitim, bu özümsemeyi başlatmak için mühim bir araçtır. Bu nedenle, bu iki alanın söylemsel çıktılarının mimarlık eğitimine entegre edilmesi önemlidir. Bu yolla

mimarlar kaçınılmaz olarak, tasarımları boyunca onlara rehberlik edecek psikolojik bir bakış açısını benimseyecek ve yapılı çevre insan ihtiyaçları ile daha uyumlu olacaktır.

Anahtar Kelimeler: Çevre Psikolojisi, Söylem, Söylem analizi, Mimarlık eğitimi, Müfredat

To my beloved family…

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ABBREVIATIONS

EP Environmental Psychology

PS Personal Space

VR Virtual Reality

CHAPTER 1

INTRODUCTION

"*L'architecture est faite pour l'homme : c'est une affair entendue.*"[1]

This motto of Lucien Kroll, who is a Belgian architect means "Architecture is made for human: no one would deny it."[2]. Even though architecture is originally intended for humans, factors about humans started to be disregarded more and more each day. At the current situation instead of humans, concepts such as form, function, city, structure or aesthetics are much more concerned by the architects. Especially environmental psychology, which is the study of humans and their interaction with natural and built environment, is an area that is extremely neglected in architecture field despite its relevance. Christopher Spencer (2007), who is a social psychologist, explains "environmental psychology has so many potential applications; yet is so little known about beyond its own journals and conferences that its potential benefits are denied to the world". Same as most of the design professions, field of architecture also does not benefit enough from this field. As a recently graduated architect my observation on this omission, in both education and practice, led me to plumb the depths of this subject. Throughout our architectural education, in design studios we had discussions on the effects of our designs on humans. However, from the experience of my own and those around me, the outcome was generally dissatisfying and seemed to be almost a failure in this context. Starting from this point of view, I became interested in environmental psychology. Although it is usually ignored, comprehending environmental psychology as a powerful paradigm and addressing it as a significant core within architecture is excessively important in order to embrace

[1] Quoted in (Mikellides, 1980, p. 7).
[2] As translated in (Mikellides, 1980, p. 7).

the interaction of human and the built environment. Thus, I have come to believe that a critical study on the intersection of environmental psychology and architecture will be beneficial in the way of integrating these two fields.

1.1. Reassessment of The Problematic

Prime purpose of architecture can be stated as creating satisfactory environments for diverse users. In order to create satisfactory environments, one must understand human psychology and interpret this knowledge during design process. Byron Mikellides book, titled as *Architecture for People,* is highly informative at this context. He briefly demonstrates the importance of understanding human psychology and needs for design; "(k)nowing about human needs is an important first step, understanding these needs is a vital second, but evoking and expressing them through their translation in built form is a culminant third" (1980, 24). This generates that it is not enough to be aware of human needs, but this knowledge should be interpreted in architectural designs. When there is a failure in this interpretation, rupture of human and design interaction transpires which is the main problematic of this study. The reason of this rupture is asserted as the lack of understanding human psychology in this thesis. To embrace and absorb the human needs and use it to create successful spaces, one should primarily understand the psychology as an important component in architecture.

In order to acknowledge the problem, which is defined as the rupture of interaction between human and design, the influence of architecture on humans and their behaviors should be explained thoroughly. Architect's impact on human psychology is significant, because they are the most important actors who shape the built environment. "The mainspring, for the architect, is evidently the life of the people for whom he is building; and the way he serves that life will depend on the depth of his knowledge and understanding of it" as it is stated by Maguire (1980, 130). Comprehension of human psychology is extremely important for sufficient designs. However, there is lack of this comprehension which has been ongoing for a while.

After the World War II, there was a call for a new kind of humanism and architecture was one of those disciplines, which were influenced by this shift, alongside politics, philosophy, anthropology and sociology. Emina Petrovic, Brenda Vale and Bruno Marques explain that as a result of realizing the required integration of humanistic concerns to architecture, psychology became an area of interest for the discipline. Following this, during the 1960s and 1970s, tendency towards psychology evolved to diverse fields of study as well as generating environmental psychology[3] through various conferences, publications and organizations. However, with the beginning of the 1980s, while environmental psychology continued its development, architectural interest in psychology gradually disappeared (Petrovic, Vale, Marques, 2015). During his speech, in Architectural Psychology Conference in 1970, Jan Gehl mentions that, "the overlooked and neglected social dimension must now be placed into consciousness and developed as a relevant dimension of architecture". Unfortunately, after all these years, lack of social and psychological dimension in architecture is still a valid argument. Moreover, Carl-Axel Acking asserts that there is a strong tendency to consider economic, technical and functional aspects much more than psychological issues. He believes that one of the reasons is that time designated to design phase is not enough for all aspects and in limited time psychological concerns seems to be more dispensable (1980).

According to various researchers, there are several other reasons of this orientation away from psychology. Byron Mikellides demonstrates one of the reasons as the difference of paradigms that are focused in architecture and psychology. According to him, psychologists are mostly interested in 'second order' problems to establish general theories, which are considered to be completely irrelevant to design, contrariwise, architects are mainly focused on the 'first order' problems which are more specific. When architect deals with psychologists' 'second order' problems, she

[3] During the process of its establishment, environmental psychology was called differently such as "architectural psychology, environmental perception, human factors of design or the ontoperivantic (human/environmental) aspects of psychostructural environics" (Mikellides, 2007). However, recently it is mostly agreed to be called as environmental psychology.

finds it hard to relate them with her 'first order' problems because of its specificity, and this leads her to more dilemmas than she already has (1973;1980). Another aspect of architecture's alienation from psychology is that architecture is a multi-dimensional field with excessive variables. Due to the fact that, human needs and responds depends on multiple factors, psychological analysis becomes more complicated that it already is (Mikellides, 1980, p.11). The complexity and the variety of problems dishearten architects and architecture students. Furthermore, EP failed to satisfy the hopes of architects', because the recommendations of environmental psychologists were impractical for architects since they were mainly built on 'mights' and 'maybes' rather than solid ground (Philip, 1996). At that time researches on environmental psychology were not as advanced as it is now. Hence, from now on, I believe that environmental psychology has the potential to contribute much more. Last but not least, architects believe that the conclusions of environmental psychology are obvious and nothing more than complex observations that they are already acknowledged by conscious architects (Mikellides, 1980, p.9). When considering all these complications, it may seem as if environmental psychology is not beneficial for architecture. However, "the contribution should be to study the…interaction between buildings and their users with the aim of making architects understand more clearly the psychological impact…(which) will influence their designs by changing their attitudes towards architecture" (Canter, 1970). The aim of environmental psychology is not finding design solutions but providing a general psychological aspect. Thus, none of those reasons above are adequate to legitimize the lack of comprehension of psychology in architecture, which is the subsidiary to the main problematic. This absence leads architects and architecture students to ignore the importance of human factors during design process. Mikellides clarifies this issue by saying that, the architect starts her career with inadequate information on people and because constituting an understanding of human psychology and human needs is thorny, she may be convinced to choose the simplest and the best approach, which is constructing her own biased concepts and architectural understanding, then designing entirely by her own emotions, instead of attempting to understand the diversity and richness of human

needs. (1980, pp.12-21). Aldington and Craig also demonstrate another aspect of the problem as it follows:

> *"It is too easy to fall into trap of thinking that as one does not necessarily know the building user, one therefore makes a building that suits everybody… average person. But average person does not exist…and designing for the average person means designing for non-existent people" (1980, p. 29).*

Because of diversity and uniqueness of needs, it is impossible to classify them. Which ones to satisfy is one of the major problems and at this point architects tend to make arbitrary decisions. This attitude of architects is completely detrimental for both parties and the discipline and it causes dissatisfaction of humans because the built environment does not correspond with their needs. Architecture's aim should be meeting as many needs of people as it can be and "help people to be more resourceful and to identify and participate with their environments in every possible way" without neglecting other factors such as form, structure or aesthetics (Mikellides, 1980, 21).

With respect to these conceptions, it is evident that human needs, psychology and behaviors should be comprehended for satisfactory designs. Environmental psychology is an interdisciplinary field within which it is possible to find common aspects of all those concepts. It contains an extended content about the interaction of human psychology, behaviors and experiences with the built environment. It can be claimed that, as a solution to the fracture of interaction between humans and designs, the role of environmental psychology within the field of architecture is undeniable. Nevertheless, there is this considerable lack of interaction between these fields. "If architecture, now and in the future, is to be a medium for easing communication and orientation in our complicated society, and not merely a technically functional manifestation… we ought to show a little more consideration for our combined knowledge about man, his needs and his reactions" (Acking, 1980, p.106,112). Thus, this study suggests that for their mutual advantage, it is important to integrate

environmental psychology to architecture and develop a closer collaboration between these two fields.

1.2. Scope and Aim of The Study

While designing spaces for humans, there are two dimensions that should be considered. The first one is physical variables such as spatial organization, tectonic qualities, building sciences and the second is psychological effects of that variables. The built environment should correspond both physical and psychological needs of the people. The awareness of the psychological dimension has been rising since the 1960s and it is named as environmental psychology. With this shift to psychological aspect, environmental psychology became a necessity for disciplines related to design. However, some of them do not benefit enough from this field while some others such as interior design embraces it more. Depending on an observation of its dominant paradigms, it is possible to assert that architecture is one of those that overlooks environmental psychology. In the present, it is mostly involved in architecture through concepts of "sustainability" and "ecology" that lead the emergence of sustainable or environmental architecture. Although there are some strong connections, reflection of environmental psychology should not be limited with sustainability. With its extensive theories and approaches on human-environment relationship, perception, privacy, personality, behavioral concepts and many more, this field deserves to be included in the field of architecture as an essential component. Thus, this thesis aims to work up a connection between these two fields and reveal the discursive nature of the intersection of environmental psychology and architecture. Due to the fact that architecture concentrates on the design and development of the built environment, "natural environment" is excluded from this research. Besides, sustainability is out of the scope of this study since it is already acknowledged by architecture community. Instead, this research focuses on the basic concepts developed from the interaction between individuals and their built environment such as place identity, place attachment, personal space, privacy and behavioral effects which are the essences of environmental psychology.

Furthermore, rethinking education component of architecture in terms of the status of these concepts is aimed as an important contribution of this thesis. As it has been explained before, the main problematic of this study is the rupture of interaction between human and design. The reason of this rupture is stated as the deficiency of understanding human needs and the effects of the built environment on psychology of the people profoundly. Even though environmental psychology is scholarly interested in subjects based on the interplay of human and the environment, it is highly neglected in the field of architecture. To overcome this shortage the accumulated knowledge of environmental psychology should be more accessible for the architecture community through integrating it as a sub-branch in architecture. The first step to achieve this can be to explore the potential merits of interaction of these fields and theoretically justify that they are supplementary to each other. The second step to procure this comprehension and absorption of environmental psychology is to embrace it in architecture education.

One of the assumptions of this thesis is that in Turkish architectural education, even if there are courses related to EP, most of them are elective courses that cannot reach broad enoug. All students should get the knowledge of EP because it involves some crucial information that designs can benefit from. Thus, as a part of rethinking educational component, a case study is conducted in order to identify the level of this deficiency in architecture education. To do so, architecture education in Turkey is generally scanned through the examination of syllabi of courses from 20 different departments of architecture. While examining the syllabi, the course descriptions, key concepts and approaches that are related to EP are critically analyzed and statistical data is reviewed to reveal the level of integration of EP to architecture education in Turkey.

Through this thesis it is expected to raise consciousness on the importance of environmental psychology for the field of architecture, both education and practice, and disambiguate the hidden interaction of these two fields. Also, through the

empirical study, demonstrating the deficiency of psychology component in education and promoting the integration of them is anticipated.

1.3. Research Strategy

Michel Foucault states that discourse is the group of statements, which produce their objects conceptually through the circulation of these statements, that characterized by a certain form of regularity (1972). Conceiving environmental psychology as a discursive unity requires to develop a certain analysis of this discourse for a comprehensive understanding. The first appearance of its objects, its effects on various fields, the discursive mechanisms that activate these objects can only be traced by a careful examination of the '*said things'*. In this way, the diversity of the '*said things'* and what they mean beyond the apparent will become known and as "a uniform text, which has never before been articulated, and which reveals for the first time what they 'really meant' not only in their words and texts, their discourses and their writings, but also in the institutions, practices, techniques, and objects that they produced" (Foucault, 1972, p.118). In a Foucauldian understanding Basa states that conceptualizing the theoretical formation of a particular discourse necessitates taking account of all the relations in which discourse is generated (2000). In this respect, in a discourse analysis, considering the potential connections that form the basis of the examined discourse is essential. As have been put forward, this thesis aims to understand and embody environmental psychology as a component in the field of architecture within its own restraints. In order to do so, explaining the essence of environmental psychology, analyzing its relevance with architecture and exploring their relations is critical. In that context, discourse analysis is highly appropriate for this study, which understands environmental psychology as a discursive formation with potential positive effects in the field of architecture.

Obviously, in the way of understanding the discourse analysis, first of all, the concept of discourse should be clarified. The definition of discourse can change from person to person and from a discipline to another, since it is not crystal clear. It can be asserted

that, discourse itself is a discourse since it has been embraced from different viewpoints by scholars from various fields. Still, it can generally be asserted that it "refers to any sort of talking or text, including bodily gestures, voice inflections, visual signs, artistic works, written documents, digital media, and so forth" (Seamon and Gill, 2016, p.124). But this approach seems to lack discourse's power of creating certain objects, its relations, its way of knowledge production and its effects on various domains beyond being a group of linguistic signs. On this matter, to better theorize what discourse is Michel Foucault should be addressed. He states that, "discourse is a complex, differentiated practice, governed by analyzable rules and transformations", it consists of group of statements, that requires a certain change of viewpoint and attitude to be recognized and examined, and it produces its objects conceptually through the circulation of these statements (1972). On the basis of these arguments, for the present study discourse consists of statements which function through convoluted interrelations promoting the existence of itself. It is not enough to indicate these statements as they are, they should be scrutinized through their changes, duplications and modifications in order to understand the diversity of a discourse. It can be construed that discourse forms its particular objects through verbal and non-verbal representations and it constructs a formation that consists of all that are expressed, represented or meant around these objects (Basa, 2000). Another fundamental concept within the theoretical understanding of the discourse is disclosed by Foucault as "the unities of discourse" (1972, p.21). The unities of discourse are not based on the uniqueness or specialness of the objects, instead on the network of institutional, academic, societal and many other relations, in which various objects emerge and continually transformed. Teymur puts forward, a unity of discourse does not necessarily suggest a uniform discursive field. Instead, it is a field of variety and conflicting elements and "a complex structured whole" (1982). Thus, features of a discourse can be articulated such as uncertainty, complexity, ambiguity, being confusing and antistatic, as well as being consistent, homogeneous and totalitarian. Emergence of discourse is then possible through the existence of ambiguity and confusion rather than clarity (Basa, 2000). Foucault states that:

> *"… the analysis of discourse operates between the twin poles of totality and plethora. One shows how the different texts with which one is dealing refer to one another, organize themselves into a single figure, converge with institutions and practices… discourse contains the power to say something other than what it actually says, and thus to embrace a plurality of meanings" (1972, p.118).*

Each element is the reflection of the totality, but it goes over the limits of it by revealing and duplicating the hidden real meanings, which meant in the institutions, practices, techniques and the objects rather than just words and texts, through discourse analysis. Thus, discourse analysis embraces both the integrity and the excessiveness as well as the complexity and multiplicity of the discourse. Discourse has deeply powerful implications in society, it is often a subject of conflict and struggle. There is not necessarily a constancy and totality in it; it is moreover an ongoing and discontinuous process, a discursive "practice" in Foucault's implication. As stated by Potter and Wetherell, discourse is "constructive rather than constructed" (Potter, Wetherell, 1987; 1992). Under the guidance of the content up to now, it is reasonable to say that both of my research areas, which are environmental psychology and architecture, are discourses because they have the features specified above. There are so many concepts, paradigms, confusions in the field of architecture and this makes it difficult to comprehend and analyze it. Basa states that architecture is a discursive field that consists of a fragmented and non-homogeneous unity of objects[4] such as "building, practice, design, form, space, function, theory, piece of art, drawing, structure, education, city, society, ideology, style, movement…" (2000). On the other hand, what makes environmental psychology a discourse is explained extensively by Prohansky, Ittelson and Rivlin as follows:

[4] According to Foucault every discourse has its objects. For the concept of 'formation of objects', see (Foucault, 1972, p.40).

> *"… man's social problems express the complexity of his existence in a complex and changing environment. They have no simple solutions because what determines them is not simple… They are rooted in a pattern of interrelated determinants (…and) complex levels of social organization. (…) Human behavior in relation to the physical setting can only be understood by analyzing it at all levels of social organization"(1970, pp.7,8).*

People's social issues are the outcome of the complexity and inconstancy of interdependent relations between human and environment. Runhaar et al. explain discourses as they "refer the ways in which (groups of) actors give meaning to particular phenomena (e.g. a particular environmental problem) and help making sense out of what is happening in the world around us" (2010). Discourses help us to make sense of environment through examination of complex relationships. Neither the objects nor the relationships within environmental psychology are special to this field. "No single discipline can produce and manage its objects without reference to other fields or without being informed and effected by them" (Basa, 2000, p.7). Interdisciplinary nature of the field of environmental psychology is another reason of its characterization as a discourse. It is a progressive field which is constructed as multidisciplinary with the collaborative effort of the people from different fields (Proshansky, Ittelson, Rivlin, 1970, p.9). It has roots in many other areas such as philosophy, geography, anthropology and architecture. The discursive formation of environmental psychology and its discursive objects will be further discussed in detail in the second chapter of the thesis.

As there is more than one correct definition of discourse, there are multiple ways to understand and analyze a discourse. There can also be unlimited interpretations of it in different disciplines. Discourse analysis is not a representation of the information on a specific topic. "Discourse analysis is to observe and conceptualize the problematic" and "is not a cure but a collection of symptoms" (Basa, 2000). Its aim is not to solve problems, it is rather revealing new meanings from the texts, speeches or

non-verbal communications other than the ones the speaker means, thus the knowledge receiver takes part in the action by identifying the complex relationships within that discursive field. To succeed this is one of my intensions in this study. There are mainly two approaches in discourse analysis; first one is mainly interested in linguistic properties and performance, whereas the other uses discourse analysis for dealing with historical, sociological, psychological or other problems. However, Foucauldian approach well-balances the linguistic and societal aspects as he concentrates on discourse and statements as they shape/reshape the reality of (social) life (Seamon, Gill, 2016, p.125). My tendency is more to the latter one since this study deals with EP which is related to social aspects.

As the first part of the analysis, '*first surfaces of the emergence'* and *'grids of specification'*[5] of environmental psychology discourse will be traced to unfold its discursive formation. In addition to discourse of environmental psychology, its interaction with architecture is also acknowledged as a discourse in this study. Thus, with the help of Foucauldian approach, later on there will be an attempt of examining the intersection objects of environmental psychology and architecture and also concepts emerge from the relation of those objects. This is essential to understand their interplay because "a field which fails to define its object properly can hardly be understood, theorized, studied, recognized, thus integrated to real social life" (Basa, 2000). The aim of this thesis is not limited to analyzing the theoretical background, instead it tries to understand the discursive interface between two fields; it attempts to open up a discussion in terms of integrating environmental psychology to the field of architecture both in education and practice.

1.4. Configuration of the Chapters

To work through these complex fields and their multifaceted relations the study is divided into three chapters apart from the Introduction and Conclusion chapters. After

[5] Mapping the '*first surfaces of the emergence'* and examining the *'grids of specification'* of a discourse is stated by Foucault as the steps of analysis of a discourse (1972, pp.41-42).

the introductory first chapter which defines the problematic and explains the aim, scope and research strategy of the study, the discursive nature and formation of environmental psychology will be explained. In this second chapter '*first surfaces of the emergence'* and *'grids of specification'*[6] of environmental psychology discourse will be scrutinized through discussing historical and theoretical roots and of the field and different approaches. Then in the third chapter, the mutual ground of environmental psychology and architecture will be critically examined through their discursive relation. As a requirement of discourse analysis, there will be an attempt of identifying the objects that compose the field of environmental psychology and the effects of these objects in architecture as well as discussing both obvious and hidden relations that occur among those objects. This research also aims to raise consciousness on the importance of psychology within the education of the architects. Thus, the forth chapter is dedicated to critically analyzing educational component, which is very essential within this study. With the aim of revealing the current status of architectural education in terms of EP, in the fourth chapter, a case study, through analyzing the architecture courses' syllabi, is conducted for 20 universities that are chosen based on various factors. This case study is believed to be essential to demonstrate the rate of environmental psychology reflections and implications on architectural education in Turkey.

It is expected to find out that, whether EP has an inadequate position or a sound status in architecture; thus, the hypothesis of this study, which is the lack of environmental psychology in the field of architecture in Turkey, will be grounded. In addition, possible methods of integration of psychology to architecture will be discussed throughout this part.

[6] Mapping the '*first surfaces of the emergence'* and examining the *'grids of specification'* of a discourse is stated by Foucault as the steps of analysis of a discourse (1972, pp.41-42).

CHAPTER 2

ENVIRONMENTAL PSYCHOLOGY: A DISCURSIVE FORMATION

"Environmental psychology is the study of the interrelationship between behavior and experience and the built and natural environment." (Bell et al. 1990, 7). The significant point here is the emphasis on the transactions between the individual and the environment because it is not only examining the surroundings on its own. According to Gifford (1997) in this relationship with the surrounding, humans affect their environment as well as their attitudes are affected by it and the purpose of EP is to understand and develop this relationship (p. 2). The transaction between individuals and environment is governed by a multiplicity of influences. Thus, it is a multilayered field that investigates wide variety of effects, conflicts, concepts and relations within its own totality. One of the fundamental concepts within the theoretical understanding of the discourse is disclosed by Foucault as "the unities of discourse" (1972, p.21). The unities of discourse are not based on the uniqueness or specialness of the objects, instead on the network of institutional, academic, societal and many other relations, in which various objects emerge and continually transformed. Teymur puts forward, a unity of discourse does not necessarily suggest a uniform discursive field. Instead, it is a field of variety and conflicting elements and "a complex structured whole" (1982). Thus, one should embrace irregularities of the environmental psychology while analyzing its discursive formation. Mapping the '*first surfaces of the emergence'* of a discourse is stated by Foucault as one of the initial steps of analyzing a discourse in order to show where these "individual differences" might arise, be specified and lastly examined (1972, p.41). He further explained "(i)n these fields of initial differentiation, … in the discontinuities and the thresholds that appear within it, … discourse finds a way of limiting its domain, of defining what it is talking about, of giving in the status of an object" (Ibid). Thus, as the first part of the analysis, '*first surfaces of the*

emergence' of environmental psychology discourse will be traced to unfold its discursive formation starting from the fields in which environmental psychology arises. Later on, '*grids of specification'* will be analyzed, which is another step of discourse analysis established by Foucault. In that part, the structures in which the concepts of EP are "divided, contrasted, related, regrouped, classified, derived from one another as objects" (Foucault, 1972, p.42). Finally, some discursive characteristics of environmental psychology is explained in the last section of this chapter.

2.1. "First Surfaces of Emergence"

Foucault declares that, one should neither neglect anthropological references, as if it had never been codified under specific conditions by some figures, nor deny the role of history in a discourse. Because "discourse is essentially historical and made up of real, successive events, that it cannot be analyzed outside the time in which it occurred". He rather uses history to examine the transformations at different levels and refuses a uniform history (1972, p.199). "Discourse… is not ideal, timeless form that possesses a history… it is, from beginning to end, historical, a unity and discontinuity in history itself, posing … its own limits, its divisions, its transformations." (Foucault, 1972, p. 117) As a reflection of this, historical roots of environmental psychology should be analyzed by embracing the 'irregularities' and 'discontinuities' in order to reveal its discursive formation.

Environmental psychology emerged in the United States, as an extension of the field of psychology towards the end of the1950s. The main reason of its foundation was the excessive interest on the effects of the spatial-physical environment within psychology discipline. In almost every book on environmental psychology, Egon Brunswik and Kurt Lewin are acknowledged as pioneers of the field due to their role in creating the intellectual basis for environmental psychology (e.g. Gifford, 1997; Bell et al, 1990). Brunswik originally concentrated on the process of perception, which is within the limits of the field, but his ideas have been extended to the overall of the field. He believed that, the environment of the human should be considered as much as the

human oneself and that human psychology can be affected by the physical setting even without being aware (Steg, Berg, Groot, 2013). Gifford states that the term '*environmental psychology'* was used by Brunswik for the first time (1997, p.5). Lewin, as being another influential figure in the establishment of environmental psychology, conceptualized the environment as a key determinant of behavior. He argued that behavior occurs from the interaction of the person and the environment (Lewin, 1951). Back in the 1940s, psychologists were mostly dealing with artificial environments. Both 'founding fathers'[7] believed that research should be based on real world of people, that include all aspects of the environment. Lewin inspired different students to continue and expand on his ideas, such as Robert Barker and Herbert Wright who are both important figures in this field. Barker and Wright began an extensive research on behavior settings in 1947 and this research led the creation of behavior-setting theory, which includes social orders and "physical-spatial aspects of our daily lives" (Gifford, 1997, p.6). However, the roots of environmental psychology can be traced far back into the history of psychology. Even before Brunswik and Lewin, in the 1910s, the whisperings of the field began through psychologists' interest in the effect of physical stimuli such as light, sound or heat on the perception of people (Bell et al, 1990). There were studies on environmental psychology even before it was named as it is.[8] But until the late 1950s, this sprouting was not systematical at all and studies performed until then cannot be considered as environmental psychology of today. In the late 1950s, Robert Sommer and Humphrey Osmond started to observe the effects of physical environment changes on behavior while Sommer was conducting his own research on personal space, which is a very essential part in the discipline (Gifford, 1997, p.6). At the same time Harold Proshansky and William Ittelson began to monitor the actions and responds of patients in a mental hospital (Ittleson, 1960; Proshanksy, Ittleson, Rivlin, 1970; Proshansky, Nelson-Schulman,

[7] Quoted in (Steg, Berg, Groot, 2013, p.2).

[8] During the process of its establishment, environmental psychology was called differently such as "architectural psychology, environmental perception, human factors of design or the ontoperivantic (human/environmental) aspects of psychostructural environics" (Mikellides, 2007). However, recently it is mostly agreed to be called as environmental psychology.

Kaminoff, 1979). With these foundations, the scope of the field has broadened in the next decades, through various conferences, publications and organizations.

In addition to psychology's neglect of physical and spatial environmental aspects, Bonnes and Secchiaroli (1995) identify three other factors that are external to the discipline but contributed significantly to the emergence of environmental psychology; the interest of the architectural field on psychology (p.3); 'the interest of the geographic field and behavioral geography' (p.11); and 'the ecological-naturalistic field, environmental problems and the UNESCO MAB (Man and Biosphere) program (Sutherland, 2014, p.14). Thus, it is possible to say that, both the emergence and development of the field of environmental psychology is an interdisciplinary process. This interdisciplinary nature of the field is one of the reasons of its characterization as a discourse. Because neither the objects nor the relationships within the environmental psychology are special to this field. "No single discipline can produce and manage its objects without reference to other fields or without being informed and effected by them." (Basa, 2000, p.7). Environmental psychology is a progressive field which is constructed as multidisciplinary with the collaborative effort of the people from different fields (Prohansky, Ittelson, Rivlin, 1970, p.9). Multi-disciplined facet of this discipline can also be observed in the roots of it. For example, *The Image of the City* (1960) by Kevin Lynch (urban planner), *Death and Life of Great American Cities* (1961) by Jane Jacobs (journalist) and *The Urban Villagers* (1962) by Herbert Gans (sociologist); are the works questioning modernist principles of urban planning and design, and claiming there is a need for a deeper comprehension of the culture and mental processes of the people (Petrovic, Vale, Marques 2015, p.482). Aforesaid events created the apprehension that interaction of humans and their physical environment should be studied as well as physical variables such as spatial organization, tectonic qualities and building sciences.

In Foucauldian approach to discourse, another aspect is the power relations which are very critical in the process of discourses. From the point of view of the institutions, Foucault states that "discourse is within the established order of things, that we've

waited a long time for its arrival, that a place has been set aside for it…(and) if it should happen to have a certain power, then it is we… who give it that power" (1972, p.216) Thus, institutional and semi-institutional factors, which played a significant role in the establishment of environmental psychology as a field of study, should be highly considered within the analysis. This institutional influence is explained thoroughly by Emina Petrovic, Brenda Vale and Bruno Marques in the 32nd Annual Conference of the Society of Architectural Historians, Australia and New Zealand (SAHANZ) which was held in 2015. They analyzed this process, by starting with series of conferences that were organized during the 1960s. First conference, which was about the relationship of the physical, biological, and social sciences in search for optimal environments for human activities, took place in University of Michigan in 1959, after the American Institute of Architects' (AIA) demand from National Science Foundation (NSF). Before that, in 1958, a seminar on similar subject was included in AIA Convention in Cleveland. Then, the first conferences, completely devoted to architectural psychology, were held in University of Utah, in 1961 and 1966 by the initiatives of architect Roger Bailey and psychologist Calvin Taylor. Following these, by the late 1960s similar conferences were taking place in the US, and in the UK under the strong influence of David Canter (2015, p.482). It is clear that the efforts of institutions mentioned above are significant in the expansion of environmental psychology. However, probably the most dominant institution on this matter is City University of New York (CUNY). Petrovic, Vale and Marques affirm that, the first PhD program in environmental psychology in 1968, and the journal of *Environment and Behavior* in 1969, both were founded at the CUNY. By the 1970s, with the publication of the *Environmental Psychology: Man and his Physical Setting* edited by Proshansky, Ittelson and Rivlin, who were instrumental in founding environmental psychology PhD and the journal of *Environment and Behavior* in CUNY, the field acknowledged by a larger majority (2015, p.482). In addition to these, the Environmental Design Research Association (EDRA), which is one of the largest environment-behavior organizations, was established in 1968. Through these events that indicate the foundation of environmental psychology as a field of study, the

influence of institutions on the formation of a discourse is evidential. In this case, especially educational institutions played an important role in constituting environmental psychology discipline.

Environmental psychology was a very diverse and growing field during the 1960s and early 1970s. Significant publications, journals, organizations and subdivisions appeared in different locations and under the influences of various related disciplines. Thus, "by the late 1970s there were dozens of books in this field[9], and by the early 1980s the first comprehensive textbooks on environmental psychology appeared[10]" (Petrovic, Vale, Marques 2015, p.483). Moreover, the establishment of the *Journal of Environmental Psychology* in 1981, excessively contributed to clarification of the scope and aims of environmental psychology. Later on, the field continued to develop and create more complex relations within itself.

2.2. "Grids of Specification"

"A grid of specification is a systematic taxonomy of concepts constructed within the discourse that is used to place objects in an ordered hierarchy or table so they can become identified types of subjects" (Powers, 2013, p.8). Therefore, this section is dedicated to the identification of the objects of EP as well as its concepts, and the classifications of these concepts. However, there is not only one type of categorization in EP, even though the included concepts are usually identical in different sources. The reason behind these differences in classification is the complexity and versatility of the field. To be able to exhibit the "grids of specification", various books that are produced with the aim of being an introductory source and explaining the fundamental concepts of EP are analyzed in terms of their contents (Table 2.1). The analyzed books are *Environmental Psychology: Principles and Practice* written by Robert Gifford in 1996(2nd Edition) and 2001(3rd Edition), Environmental Psychology for Design

[9] Such as Heimstraand, N. McFarling, L. H. Environmental Psychology,1974; Canter, D. Stringer, P. Environmental Interaction: Psychological Approaches to our Physical Settings, 1975; Holahan, C. J. Environment and Behaviour: A Dynamic Perspective, 1978.

[10] Such as Gifford, R, Environmental Psychology: Principles and Practice, 1987; Bell, P. A., Fisher, J. D., & Loomis, R. J. Environmental psychology. 1978.

written by Dak Kopec in 2012, and *Environmental Psychology and Human Well-Being* written by Ann Sloan Devlin in 2018.

After a brief examination of the content, it is obvious that EP includes a wide range of concepts which makes it impossible to discuss all of them in this thesis. The concepts are mostly derived from the interaction of people and environment, natural as well the built one. In addition, there are also subjects about sustainability and pro-environmental precautions, which are in the limelight in the last decade. On the other hand, when the emergence of the field is also considered, it is possible to assert that EP is founded upon some fundamental concepts, which arises from the relation of the objects of this discourse, such as perception, cognition, behavioral effects, personal space, privacy and territoriality. These concepts and chapters related to them are emphasized as bold in the aforesaid table. Because of the broad scope of the field, these concepts are accepted as the core of EP by the author of the thesis, and discourse analysis of the intersection of EP and architecture is limited to these concepts. Another reason for this is that these concepts gives opportunity for a discursive discussion and composition in related to architecture in a more comprehensible way.

Table 2.1. *Table of Contents of some Introductory EP books.*

Name of the Source	Table of Contents	
Environmental Psychology : Principles and Practice - 3rd edition	1. The Why, What, and How of Environmental Psychology	**8. Personal Space and Territoriality**
	2. Environmental Perception and Assessment	**9. High Density and Crowding Intimacy**
	3. Environmental Cognition	10. The City
	4. Theories of Environment-Behavior Relationships.	11. Architecture, Design and Behaviour
	5. Noise	12. Design in Selected Environments
	6. Weather, Climate, and Behavior	13. Work and Leisure Environments
	7. Disasters, Environmental Hazards, and Air Pollution	14. Changing Behavior to Save the Environment
Environmental Psychology for Design	Chapter One An Introduction to Environmental Psychology	Chapter Eight Infants, Toddlers, and Childhood: **Space, Place, and Privacy, Crowding**
	Chapter Two Foundational Theories of Environmental Psychology: **Behavior-Setting Theories**	Chapter Nine Play Spaces
	Chapter Three The Human Condition: Gender Roles, Gender and **Perception, Personality, Personal Space, Territoriality**	Chapter Ten Learning and Education: Lighting, Color, Wayfinding
	Chapter Four Psychobiology of Behavior	Chapter Eleven The Elderly Population
	Chapter Five Sensation and Perception: Gestalt Theories of Perception, Perception and Design, Process of Perception	Chapter Twelve Health Care Environments
	Chapter Six Information Management: aesthetics, Wayfinding, Color, Cognitive Maps	Chapter Thirteen Cruise Ships, Resorts and Hotels: Wayfinding
	Chapter Seven Persons with Disabilities	Chapter Fourteen Retail: Crowding and Density, Gender
	Chapter Fifteen Office Environments: Ergonomics, Sick Building Syndrome, Environmental Analysis, Lighting, Ventilation, Noise	
Environmental Psychology : Principles and Practice - 2nd Edition	Chapter 1. The Nature and Scope of Environmental Psychology	**Chapter 8. Privacy**
	Chapter 2. Environmental Perception	Chapter 9. Residential Environmental Psychology
	Chapter 3. Environmental Attitudes, Appraisalis, and Assessments	Chapter 10. Community Environmental Psychology
	Chapter 4. Personality and Environment	Chapter 11. Educational Environmental Psychology
	Chapter 5. Personal Space	Chapter 12. Workplace Environmental Psychology
	Chapter 6. Territoriality	Chapter 13. Natural Environmental Psychology
	Chapter 7. Crowding	Chapter 14. Managing Limited Resources
	Chapter 15. Designing More Fitting Environments	
Environmental Psychology and Human Well-being : Effects of Built and Natural Settings	1. Concepts, Theories, and Research Approaches	**8. The Environment and Consumer Behavior**
	2. A Typology of Suburban Experiences in the United States	9. Everyday and Nearby Natural Environments
	3. Residential Environments and Active Living	10. Behavioral Impact of Naturalistic and Wilderness Settings
	4. Housing for Older Adults	11. Can Correctional Environments Be Humane
	5. City Life and Well-being	12. Healthcare Settings
	6. The Role of the Physical Environment in Education	13. Designing Mental and Behavioral Facilities: Psychological, Social and Cultural Issues
	7. Workplace Settings	14. Memory Care and Alzheimer's Units
	15. Therapeutic Landscapes	

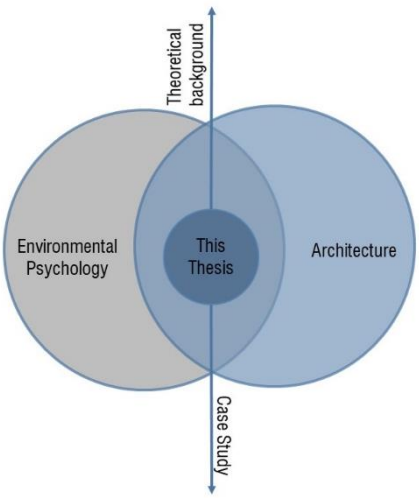
2.3. Environmental Psychology Discourse

Environmental psychology is a study field that emerged in the 1960s and it became more popular with the concern of green environment. The early definitions of EP consist of different aspects. According to Heimstra and McFarling it is concerned with relationships between behavior and physical environment (1978). Another one is that "the study of human behavior and well-being in relation to the sociophysical environment" (Stokols, Altman, 1987). In order to comprehend environmental psychology, one must understand the principles of it. Environmental psychology is competent to develop the built environment, considers human and the surrounding in a totality, and is interdisciplinary (Gifford, 1997, p.6). Improving the man-made environment, through discussing human and the built environment, in a holistic approach with the help of other disciplines can be a successful way of improving this field. Many occupational groups can benefit from this area of study through the contemplation of these principles. Researching the built environment's influences on humans can be a concern of many professions such as industrialists, lawyers, architects, anthropologists, office managers (Bell et al. 1990, p.9). One of the most critical characteristics of environmental psychology is its interdisciplinary connections to fields such as geography and architecture, which share a common interest in the transaction between person and environment. There is an obvious collaboration and correspondence between environmental psychology and related fields, but environmental psychology still can remain as a distinct discipline in its own right. In addition to this already existing degree of diversity, researchers working within the field are from increasingly diverse subject backgrounds, so that, their interests, methods of investigation, and views of the discipline are widespread and often conflicting. These peculiarities and discontinuities of environmental psychology make it possible to approach the field as a discourse. Understanding environmental psychology as a discursive formation requires a much more detailed examination on the statements of the field. From now on, the study will be more focused on the interaction of environmental psychology and architecture.

CHAPTER 3

INTERSECTION OF ENVIRONMENTAL PSYCHOLOGY AND ARCHITECTURE

As it is stated by Jon Lang (1987) “The architectural environment consists of different surfaces of different materials... The way people structure the surfaces of the world... affects all the interactions between them and the terrestrial environment.” (p. 81). All the contents of built environment somehow affect humans, and these effects are variable for individuals. Not only the individuals but also the transaction between individuals are affected by it. Environmental psychology studies these effects and their reflections on the design, hence there is an inevitable correlation between environmental psychology and architecture. “Since its inception environmental psychology has focused its interdisciplinary discourse with those who design and plan the physical environment, toward architects” (Churchman, 2002, p.191). Nevertheless, the field’s contribution to architecture was not welcomed from the start, however with the field being able to prove some of its findings it started to capture the attention of architecture field and environmental psychology started to find its place in other paradigms of architecture.



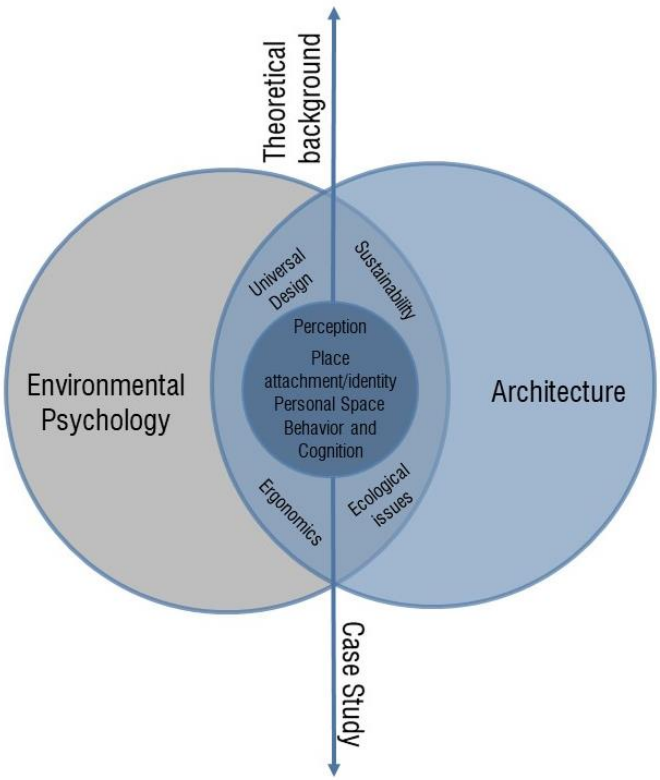


Figure 3.1. The location of this thesis within the intersection of two fields (By the author).

However, in order to develop a closer collaboration between environmental psychology and architecture, their interaction should be comprehended in depth. In order to do so, with the help of Foucauldian approach, the rest of this chapter will be an attempt of examining the intersection objects of environmental psychology and architecture as well as concepts emerge from the relation of those objects (Fig. 3.1).

3.1. Identification of the Mutual Objects

It can be construed that discourse forms its particular objects through verbal and non-verbal representations and it constructs a formation that consists of all that are expressed, represented or meant around these objects (Basa, 2000). In this part, the objects of the intersection of environmental psychology and architecture will be identified. This is essential to understand their interplay because "a field which fails to define its object properly can hardly be understood, theorized, studied, recognized, thus integrated to real social life" (Basa, 2000). In order to identify the objects of

environmental psychology, '*formation of objects'* in Foucauldian approach should be perceived. He describes this process as:

> *"The conditions necessary for the appearance of an object of discourse, the historical conditions required if one is to 'say anything' about it, and if several people are to say different things about it, the conditions necessary if it is to exist in relation to other objects, it does not pre exist itself held back by some obstacle at the first edges of light. It exists under the positive conditions of a complex group of relations" (1972, p.45).*

Environmental psychology embodies various concepts such as place, human, perception, cognition, personal space, territoriality, place attachment, affordances, personality, behavior and many more which can be acknowledged and examined as objects of the field. However, at the core of all its concepts there are two primary objects; human and place, since it is the study of interaction between people and their physical environment. It is possible to say that all other concepts emerge from the relations of these two objects. As it has been explained before, there are diversified and even contradicting approaches and definitions of the notions in this field. All the ambiguous objects are formed through the complex relations that function in the unity of environmental psychology discourse. It sustains its own consistency in order to make it emerge in its own complexity (Foucault, 1972, p.47). There are abundant concepts, paradigms and confusions in the field of architecture as well. It can be explained that architecture is a fragmented and non-homogeneous unity of objects such as "building, practice, design, form, space, function, theory, piece of art, drawing, structure, education, city, society, ideology, style, movement…" (Basa, 2000). Even though they are not included in this statement, human, perception and psychology are also the important objects of architecture. When the intersection of environmental psychology and architecture is observed, it is obvious that they have converging objects such as human, design, building, perception, psychology, affordances, function and behavior. For example, affordance and function as being objects of

different fields, are actually quite similar. Function is one of the inputs that architect constitutes the required design. On the other hand, Lang explains that some "affordances" of architecture are dwellings, protection, gathering spaces and many more. The affordances may not always be recognized by humans or all the recognized ones may not be used (Lang, 1987, pp.83-103). Thus, function and "affordances" are not exactly the same however, they resemble because both of them designate some behaviors for the people.

Figure 3.2. shows the relationship of these two fields based on the data retrieved from Web of Science. The smaller nods in the diagram represents the keywords used for the sources in Web of Science.

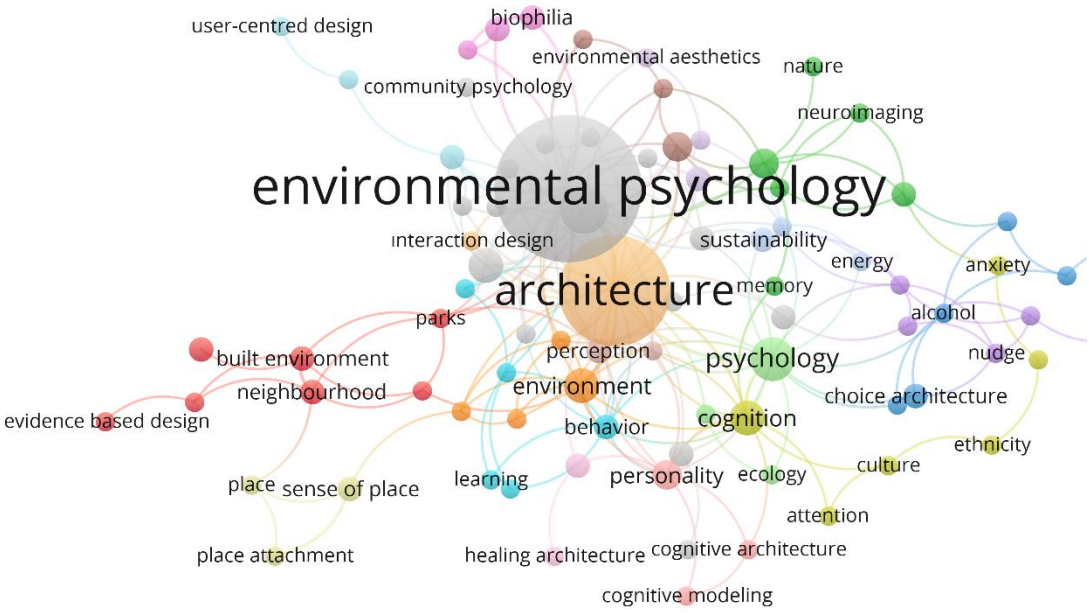


Figure 3.2. The relationship of EP and architecture based on the data retrieved from Web of Science (By the author).

Figure 3.3 shows a closer look to their relationship, which results the occurrence of more keywords. From these two figures, it is visible that these two fields are considerably related, and their interaction unravels abundant concepts. Figure 3.4. exhibits the keywords which are directly related to the intersection of these two fields.

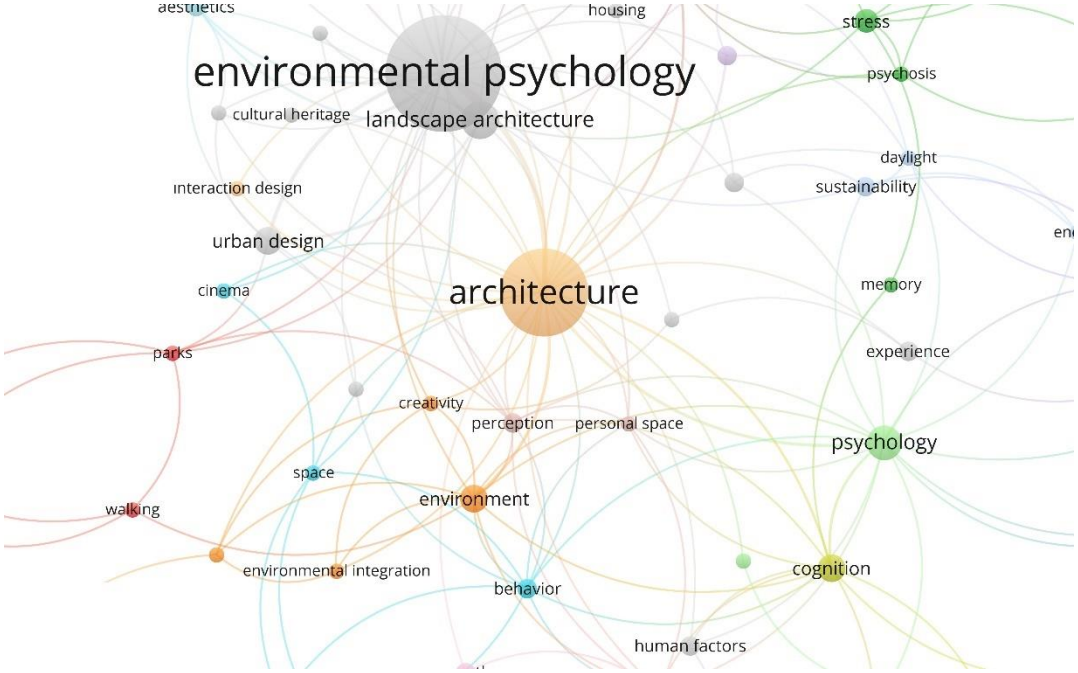


Figure 3.3. Closer look to the web-like relationship of EP and architecture (By the author).

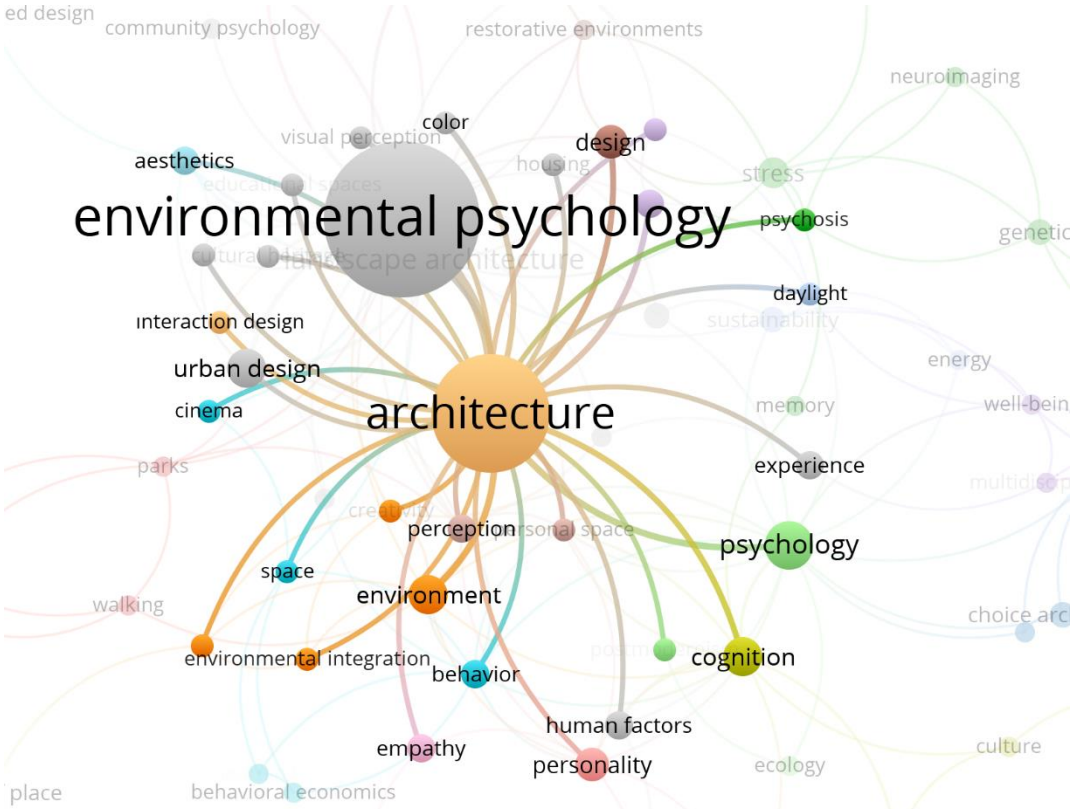


Figure 3.4. Keywords which are directly related to the intersection of these two fields (By the author).

Following the diagrams above, it is possible to indicate the objects of the intersection of environmental psychology and architecture as it is shown in Figure 3.5. All those objects indicated in Figure 3.5. reserve a place as keyword in the previous figures. However, since the objects of a discourse is the smallest formative unit of that discourse, the mutual objects of EP and architecture are limited to the most basic keywords which are environment, design, human, space, and place. All those objects are essential through providing the base for the emergence of all relations. Both the objects and their relations can be enhanced, however, understanding a discourse with its all aspects can take an excessively long time. Because of the flexible boundaries of each field and the uncertainty of their objects, the boundaries are represented as discontinuous. Because of this flexibility and instability, this attempt of discourse analysis can only be accepted as the beginning of a process.

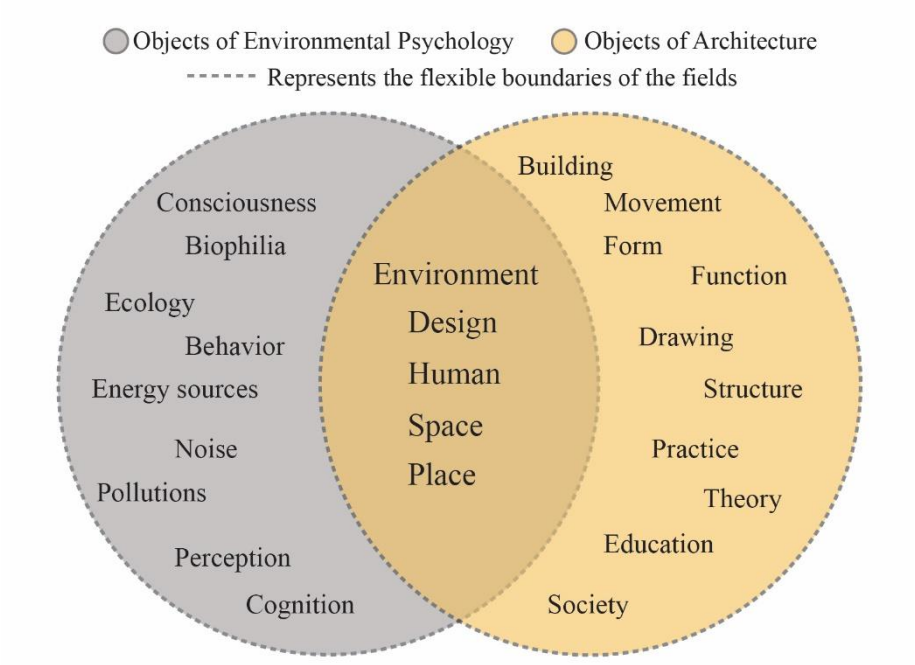


Figure 3.5. Identification of objects of each field and the intersection of them (By the author).

3.2. Occurrence of Relations Between Identified Objects

Place, which is stated as the main object, is the core of environmental psychology. It is tangible and finite unit of space which is experienced through body or senses. “Place is space endowed with meaning” (Altman,Low, 1992). The meaning can be given by the architect that designs the place or people who use the place. It is stated that the one who creates space for its own potential social relations, provides the meaning, form and after all through everyday movements produces place (Low, 2012). Either way there is an inevitable transaction between place and human. Humans are affected in various ways, physically or psychologically, and from this transaction, concepts such as place attachment, place identity, personal space and many more transpire (Figure 3.6).

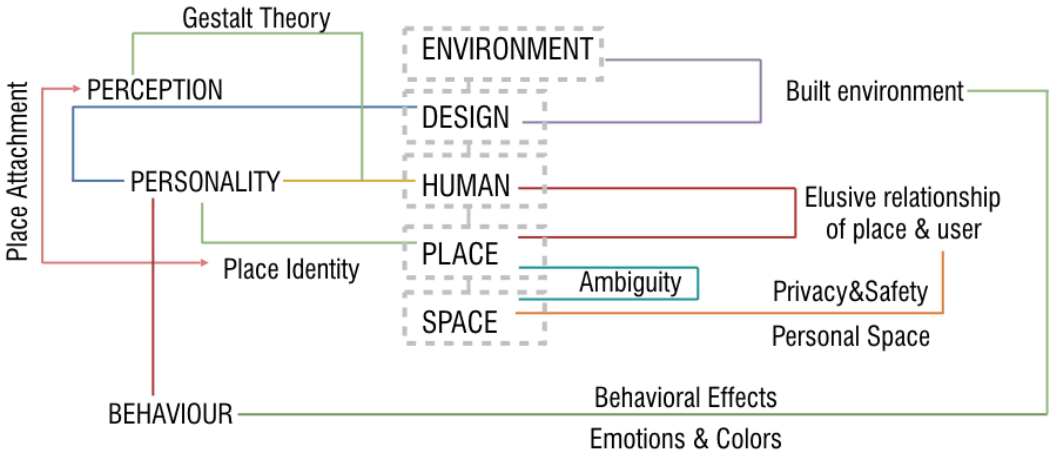


Figure 3.6. Possible relations between the mutual objects of EP and architecture (By the author).

Each of these can be discussed as a discourse on their own which are also a part of a broader discourse, however they will be analyzed on a smaller scale. Every section that is dedicated to a relation is discussed with the architectural point of view in order to serve to the aim of this thesis and is limited with a wide range of different or repetitive definitions, approaches and theoretical issues of the related concepts.

While constituting the diagram, the relationship of all five mutual objects are taken into consideration. All those objects are essential through providing the base for the emergence of the concepts that are discussed in the forthcoming sections. Both the

objects and their relations can be enhanced, however, understanding a discourse with its all aspects can take an excessively long time. For this reason, this attempt of discourse analysis can only be accepted as the beginning of a process.

3.2.1. Place and Space Ambiguity

There is an ongoing conflict between two of the most prominent objects of architecture which are place and space. The reason for specifying it as a conflict is that their relationship is convoluted and unstable because it is troublesome to dissociate one from another. It is critical to review this relationship in conjunction with the meanings of both notions along with overlapping and dissociating aspects. Because they are key notions that a lot of concepts of architecture and environmental psychology revolve around.

In the way of understanding the relation of place and space, one should start understanding them as separate items. As it has been stated by Sen and Silverman, academics who studied man-made settings differentiated these two concepts cautiously, in the way of illustrating substantial scenes. Space, which has been deemed mostly intangible, has been described as a limitless, blank, 3-d abstraction that involves a bunch of associated occurrences and substances. However, place consistently attributes to a substantial position, can be both actual or imaginary, and is continually rearranged and re-clarified (2014, pp.2,3). Both of them have many different explanations that are derived from various point of views due to their multidisciplinary nature. For example, space has been indicated as unfilled, which can only be acknowledged through a person's linkage and description (English and Mayfield, 1972, p.214). Another description of space is displayed as follows:

> *"Although there is no unanimous definition, space is the term for abstract geometrical extension indifferent with respect to any human activities. ... when human activity, experience or behaviour characterises space: personal space, pragmatic space, perceptual space, existential space" (Graumann, 2002, p.108).*

The latest statement reveals that there are different dimensions of space and these dimensions are the consequence of the impact of people. Through various actions and cognitive reflections, people are the ones who distinguishes spaces. One of them is personal space, which is a concept that will be explained in depth in the forthcoming section. Two other dimensions of space are identified as perceived and conceived space. The former one refers to the unseeable space that enclosing people, is derived from behaviors and feelings, and has impact on the actions that can take place, whereas the latter "refers to our knowledge of spaces which is primarily produced by discourses of power and ideology constructed by professionals such as planners, engineers, researchers etc." (Saar, Palang, 2009, p.6). Contrary to the definition of conceived space which explains it as the knowledge of a space, Foucault takes it a step further and declares that knowledge is a space on its own, "in which the subject may take up a position and speak of the objects with which he deals in his discourse" (1972, p.182).

Henri Lefebvre is another powerful figure to understand the concept of space. He defined space as "an empty abstraction; likewise, energy and time" and he approached space regarding social aspects (1991, p.12). In order to unfold the approach of Henri Lefebvre to space, Sen and Silverman explained "social orders are so crucial to the construction of spaces that, … the material politically and ideological conditions of those who produce space are its most important constitutive elements". Contrary to this, possibility to restrict place, which indicates a tangible entity, by substantial limits as well as by transient and socially built limits is also clarified (2014, p.3).

The statements that are gathered up to now harbor some repetitions. The most obvious repetition is that place is a physical entity whereas space is an abstract one. Space addresses to an invisible presence that surrounds one. On the other hand, place refers to a concrete area that has certain limits. The definition of place as "any environmental locus in and through which individual or group actions, experiences, intentions, and meanings are drawn together spatially" emphasizes the physicality of it (Casey, 2009).

As being divergent conceptions on some levels and properties, they are both excessively related to each other. Place constantly contains "appropriation and transformation of space and nature that is inseparable from the reproduction and transformation of society in time and space" (Pred, 1986, p.6). The formation and recreation of space continuously affects place. In this context, how the space is produced and reproduced is an important aspect to tackle. According to Lefebvre, space is a social output that is produced through "thought and action", however, it is an instrument of thinking and behavior at the same time. Thus, it is also a tool of authority, dominance and power besides being a product (1991, p.26).

Not only the space, but the place is related to the social attributions as well. Because social and physical aspects are connected to each other. Two aspects cannot exist without one another (Ittelson et al., 1974). Lewicka explains place as a "meaningful location" which has both physical and concrete basis along with social aspect (2011, p.213). She brought a new aspect by asserting the meaning of place. It is possible to say that place contains multiple meanings, because the meaning which the architect had in mind while designing can differ from the meaning that is perceived and conceived by the users. Places "are constructed in our memories and affections through repeated encounters and complex associations" (Relph, 1985, p.27). Since the experiences and emotions are excessively personal and can change from one individual to another, place meanings that are derived by different individuals can differ too. It can even change based on the mental state of an individual or the surrounding conditions for the same place. "Meaning of buildings, neighborhoods, and cities is not static, but variable in its personal, cultural, historical, social, economic, and political contexts" (Sen, Silverman, 2014, p.2).

People's relationship with place and the meanings they reproduce are "dynamically and strategically constructed in talk and interaction" (Masso et al., 2014, p.80). Sussman and Hollander suggested that people are in search of ways to reproduce meaning for their physical settings and to connect with those settings (2015, p.135).

This connection of people towards place leads to another concept called place attachment which is also a section within this thesis.

As it is explained through various statements and approaches place, space and human are in a constant interplay. These three entities are related on level that is higher than just affecting each other, rather they contribute to the creation and reproduction of one another. An example to the contribution of place on humans is the concept place identity, which will be discussed in the further on. In this sense, language is a forceful tool to make places.

> *"City people are constantly "making" and "unmaking" places by talking about them" (Tuan, 1980, p.6) ... "it is simply not possible to understand or explain the physical motions that produce place without overhearing, as it were, the speech - the exchange of words - that lie behind them" (Tuan, 1991, pp.685-686).*

Due to its discursive nature, the formations and productions of these notions through language is an important aspect to understand them in depth. However, this does not solely mean verbal communication. It contains the hidden communication within an architectural setting as well. "Narrative can also be embedded wordlessly, expressed in the spatial sequencing of a plan, for example, including its room layout, orientation, and size" (Sussman, Hollander, 2015, pp.135-136). As an example, layout of homes designed by Frank Lloyd Wright can be given, which is explained as follows:

> *"Frank Lloyd Wright's house plans, for example, are known for their clear sequencing: a small entryway with a low ceiling leads to a tight anteroom and then crescendos in the large public living space with high ceiling, a fireplace and a broad view of nature outside. Wright could have designed the homes for residents to walk straight into the main living space but never did. The careful ordering of the spaces instead gives the house story-like flow, magnifying a sense of arrival in the largest rooms and celebrating the home as a significant, dignified, place" (Ibid, p.136).*

The description of Frank Lloyd Wright's house designs clearly depicts that place almost communicates with people through its physical attributions. Apart from being a medium for activities and interactions within people (Graumann, 2002, p.108), place becomes a part of their interaction. Heidegger's notion of Dasein (existence) "implies not only that we cannot exist independently of the world around us but also that the world around us cannot exist independent of the people who inhabit it" (Sen, Silverman, 2014, p.3). This signifies the co-existence and interdependence of the environment and people and proves that two objects of this research are in constant interaction.

3.2.2. Place Attachment and Place Identity

Place attachment and identity are two of the most studied subjects within EP. Both deserve their solid places within architecture field due to their relevance and importance in understanding the relationship between people and the built environment. Thus, it is valuable to reconsider these separate but also interconnected concepts thoroughly.

3.2.2.1. Place Attachment

Place attachment dates to the 1960s and it refers to bonds that people develop with places. The emergence of this concept was a consequence of the interactive relation between people and their surroundings, and how this concept is affected by the conditions of those surroundings has been sought through many researches (Carrus et al., 2014, p.154). Affinity towards place has always existed in the past, however in the 1970s "person-place bonding" started to draw attention among sociologists and humanistic geographers, and after that it became a prominent topic in environmental psychology in the 1980s which led to suggestion of multifaceted descriptions (Gifford, Scannell, 2014, p.24.). It is unexceptional that there are various definitions and approaches to explicate place attachment because it is eminently a complex concept. Low and Altman, who are two of the pioneers of this notion, have also explained place

attachment as intricate and versatile (1992, p.3). After almost two decades, Gifford and Scannell explained that it still preserves its ambiguity as follows:

> *"Definitional diversity reflects the growing interest in place attachment, and can be seen as progress in the concept's theoretical development. Researchers have highlighted different processes, places, and people involved in person–place bonding, but these definitions remain scattered in the literature, and thus the theoretical development of the concept has not yet been acknowledged, nor has a more general definition of place attachment been agreed upon"(2010, p.2).*

Nevertheless, according to Carrus et al, defining it as an assortment which consists of affirmative sentimental connections between people, batch of people, society and everyday life atmosphere of them is considerably acceptable amongst different opinions. They also continued explaining that adverse or conflicting links towards places are also included in this notion even though it is rather a newer point of view (2014, p.154). Attachment can also occur under the influence of unfavorable emotions, such as having a bad experience in a location that it is imprinted in one's memory in a negative way. One of the most apparent examples can be the destructive memories of a soldier that leads the soldier to have adverse emotions towards some places, cities or even countries, which still counts as a form of attachment. Even though it has been stated that for the bond to be established the emotions of a person should be stimulated through a place in either positive or negative way, in general, attachment consists more of favorable connections (Gifford, Scannell, 2010). Lewicka explained that these positive connections indicate distinctive sentimental involvement which leads to the sense of belonging, eagerness for proximity and desire to come back in case of being abroad (2014, p.49).

Place attachment revolves around various factors. Gifford and Scannell presented a model which demonstrates the multidimensionality of the concept (*Figure 3.7*). The model consists of three dimensions; person, psychological process and place. The first

dimension, people, shows that attachment can develop at the individual level, which "involves the personal connections one has to a place" as well as at the group level, which contains the historical, religious or cultural common ground that is shared within the group (2010, p.2). Whether it is an individual or group, their preferences and differences definitely affect the attachment. Psychological process, which is the second dimension according to Gifford and Scannell, "concerns the way that individuals and groups relate to a place, and the nature of the psychological interactions that occur in the environments that are important to them". They explained this dimension with 3 levels; affect which represents the emotions towards places, cognition which "involves the construction of, and bonding to, place meaning, as well as the cognitions that facilitate closeness to a place" and lastly behavioral which "is founded on the desire to remain close to a place, and can be expressed in part, by proximity-maintaining in concert with journeys away, place reconstruction, and relocation to similar places". The last but not the least, the third dimension is place which contains social and physical levels. (2010, p.3). There are far too numerous ,inducements that people-place bond can be fuelled. They are interconnected and sometimes overlapping, thus it is difficult to examine them separately, however from the architectural point of view place dimension is rather crucial.

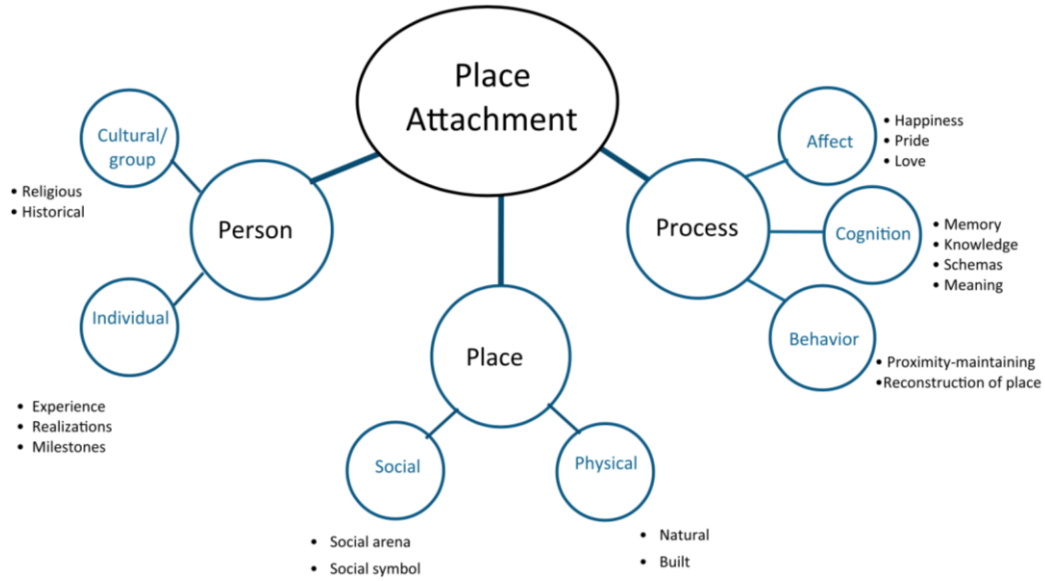


Figure 3.7. Tripartite model of place attachment (Gifford, Scannell, 2010, p.2).

Similar to Gifford and Scannell, Lewicka also gathered some of the factors of attachment under two aspects which she defined as “physical and social dimensions”. Since the tripartite model is broader, these two aspects correspond to the levels of place dimension suggested in the model, thus from now on place will be addressed as a dimension which involves physical and social levels. She explained that the reason behind a connection between people and a place can be social such as “close ties they have in their neighborhood, generational rootedness, or strong religious symbolism of the place” or people can form a bond through physical features which can be “beautiful nature, possibility of recreation and rest, or physically stimulating environment” (2011, pp.213). In the previous chapter, it has already been established that place consists of both physical and social elements. Therefore, it is plausible that this statement is also valid for place attachment concept.

There have been diverse researches with the aim of unfolding the physical level of the concept. One of them is the survey which has been carried out by Eisenhauer, Krannich and Blahna in Utah. The aim for the survey was to understand the ratio of different activities that people associate with their attached places and the reasons behind those attachments. The results show that places are not considered important solely because of a particular activity but rather because of multiple experiences that a place can provide. More importantly, two of the most selected choices for attachment reasons are ‘‘Family/friend related reasons’’ (36.9% of the answers) and ‘‘environmental features/characteristics of place’’ (34.2% of the answers) (2000). It is agreeable to state ‘‘Family/friend related reasons’’ refers to the social dimension whereas ‘‘environmental features/characteristics of place’’ refers to the physical dimension of the notion, and both of the choices have been selected almost equally. By all means, it is not convenient to deduce the conclusion that both suspects are equally effective on the place attachment from only one research, but the importance of physical dimension can be concluded based on the research and statements above since there are some similar or repetitive outcomes.

Physical and social levels cannot be detached from each other utterly. From the constructivist point of view, they are in a "symbiotic relationship" where they affect each other (Burley, 2007). However, they are treated as separate measures, which can contribute to the course of place attachment individually, by most of the researchers in the field (Lewicka, 2011, p.213). Considering multiple aspects is crucial in the process of discourse analysis, because discourses cannot be unfolded without comprehending its multidimensional structure. Although both dimensions are acknowledged in this research, physical aspect is prioritized due to its relevance to the research topic.

What are the physical attributions which can be the induction of attachment? Bonaiuto, Fornara, and Bonnes designed an index called Index of Perceived Residential Environment Quality (PREQ) in 2003, with the aim of "measuring the quality of the relationship that inhabitants have with their urban neighbourhoods" through 11 different scales (Table 3.1). They explained these 11 scales as follows;

> *"The 11 scales are included in four generative criteria as follows: three scales concern spatial aspects (i.e. architectural-planning space, organization and accessibility of space, green space); one concerns human aspects (i.e. people and social relations); four concern functional aspects (i.e. welfare, recreational, commercial, transport services); three concern contextual aspects (i.e. pace of life, environmental health, upkeep)" (p.41).*

Index of PREQ shows that there are many physical attributes affecting people-place bond. Not only the spatial aspects, which directly affects the bond, but also the other three aspects can also be accepted as physical influences because physical attributes have certain impacts on the social ones. For example, in Table 3.1, one of the items in functional aspects is "This neighborhood has good school facilities". This proves that the design plays a crucial role because schools should be designed to incorporate many facilities and opportunities for the students' wellbeing. Schools occupy a great majority of the childhood era and it is one of the places that children spend most of

their time after their home. Therefore, it has a high possibility to be one of the attached places.

Table 3.1. *Summary of Index of PREQ designed by Bonaiuto, Fornara, and Bonnes in 2003.*

Generative Criterias	Scales	Example of Items
Spatial Aspects	Architectural-Planning Space	- Buildings are beautiful - The buildings have an unpleasant shape - Buildings are made of good materials - Buildings are too close together - Open spaces and built-up areas are well-balanced - Buildings are too tall
	Organization of Accessibility and Roads	- There is not enough space to walk - Streets are wide enough
	Green Areas	- There are enough green areas - The green areas are well-equipped - Most green areas are closed to the public - Green areas are in good condition
Human Aspects	People and Social Relations	- People are not very sociable - This neighbourhood is too crowded
Functional Aspects	Welfare Services	- This neighbourhood has good school facilities - The local health service is satisfactory
	Recreational Services	- There are areas where you can do outdoor sports - Libraries are adequate for residents' needs
	Commercial Services	- Anything can be found in the neighbourhood's stores
	Transport Services	- The quality of public transportation is poor
Contextual Aspects	Pace of life	- The chaos is unbearable - There is a calm atmosphere - It is fun to spend your free time - This neighbourhood is full of activity
	Environmental Health	- This neighbourhood is generally not polluted - There is too much noise - This is a clean neighbourhood
	Upkeep and Care	- Road signs are well-kept - Streets are regularly cleaned - Many buildings are in poor condition

There is not really a limit to the places that people can get attached. As Giuliani explains, it can be a place we experienced in our infancy or adulthood, we wish to be or go back to in times to come, "… the house in which we live or have lived, a certain room in the home, the area around the home, the neighbourhood, the city, the country…"(2003, p.137). Lewicka complained that the center of attraction of place attachment studies is usually one-sided by means of place scale and contrast of attachment to various scales are often neglected. She classified place scales from the most studied to the least as follows; neighborhood, home, cities, region, country and continent (2011, pp.211,212). Contrary to this, with their research on three different spatial scales, Hidalgo and Hernández found out that people rather form a bond in home and city scale rather than neighborhood scale (2001). Gifford and Scannell also expressed that;

> *"Attachments have been observed at many different spatial and temporal levels and for a variety of place types, ranging from planets, continents, countries, islands, cities, neighborhoods, streets, buildings, homes, specific rooms, and other places; some individuals are even attached to historical, spiritually significant or imaginary places" (2014, p.27).*

A wide range of places are indicated as stimuli for people place bonding in the quotations above, the most repetitive and researched ones being home, city and neighborhood. In order to understand the depths of the concept, all these scales should be taken into consideration, however since the focal point of this research is the common ground of environmental psychology and architecture, micro-scale places such as homes, schools and neighborhoods are more relevant to the discussion.

While thinking about attachment in an architectural sense, one might confuse it with liking or preferring a place over another. However, finding a place aesthetically pleasing or preferring a place because it has a physical attribute that the other does not is fairly dissimilar from attachment. Williams separates attachment from the others as follows:

> *"What differentiates aesthetic experiences from attachment implies that the former is an immediate (sensory) response whereas attachment is something that builds up and evolves over time. Another example is to distinguish attachment from evaluative judgments such as attitudes or preferences. Whereas attitudes and preferences imply some level of discretion or choice, place attachment implies a deeper, ineluctable bond with a place" (Williams, 2013, p.93).*

As an example, preferring the same cafe because it has the most comfortable chairs is not even close to attachment. On the other hand, if that chair is similar to the one a person had throughout the childhood there is a possibility that the chair reminds the childhood home evokes the affectionate feelings which leads the person to choose going to that cafe. The unbreakable connection of person and childhood home developed over a whole period of time rather than being a production of an instant. Thus, attachment requires a certain amount of time to occur. Lewicka explained the contribution of time by correlating the time spent at a place with the reproduction of place-related meanings. When one lives in the same place for a long period of time, one experiences that place in various phases of life, "such as growing up, dating partners, marrying, having children, and getting old, … which offers a deep sense of self-continuity" (2011, p.224). This absolutely does not mean the attachment increases in direct proportion to the time one spends at a place or does not guarantee the attachment if one spends enough time at a place. Notwithstanding, it is one of the contributors.

3.2.2.2. Place Identity

"Several perspectives and authors both in psychology and in other disciplines (philosophy, history, geography, anthropology, sociology) have argued that the environment is relevant for people's identity (Bonaiuto, Bonnes, 2000, p.70). Because it expands through notions of place and identity which are the concern of many other fields besides psychology. The concept of place-identity can be greatly encountered

in especially geography, psychology, and design and planning disciplines such as human geography, urban planning, social psychology and environmental psychology. When one scans the literature of the concept aiming to trace it back to its emergence, one realizes that it is mostly developed in human geography and environmental psychology. In both of these fields, there are some outstanding researchers, who took the first steps to shape place-identity concept, such as Yi-Fu Tuan, David Seamon and Edward Relph as geographers and Harold M. Proshansky, Abbe K. Fabian, and Robert Kaminoff as environmental psychologists. Even though the focus in this research is the environmental psychologists' point of view, it is important to mention human geographers' approach as well, because multi-disciplinary approach is an essential point in discourse analysis.

In his book called *Topophilia*, Tuan stated that how people react to the physical settings is the reason of formation of emotional bonds between people and place. He further explained those emotions that "differ greatly in intensity, subtlety, and mode of expression" include a wide range from the feelings to the coziness and security of home to the sense of being aesthetically pleased by a physical setting (1974). On the other hand, Relph affirmed that "a deep human need exists for associations with significant places". His book called *Place and Placelessness* is an important source in differentiating "identity of places" and "identity with places". Basically, he explained that identity of places is how one place is differentiated from other places through its physical attributes, facilities that are provided and the place meanings, which are constituted through experiences of the users. Secondly, he discussed identity with places through the duality of "insideness/outsideness". "Insideness" is the strong positive emotional bond with the place whereas "outsideness" is the affective withdrawal towards a place (1976). The explanations of these two geographers are closer to the place attachment discussion from the previous section of this thesis. The reason for this is the ambiguous relation of the two concepts which will be further discussed later on.

On the contrary, some of the environmental psychologists were in the search of a broader theory on the concept because they believed that the representation of human geographers is limiting. Hence, place-identity is defined by Proshansky, Fabian and Kaminoff as a "a sub-structure of the self-identity of the person consisting of broadly conceived, cognitions about the physical world in which the individual lives." (1983, p.59). The latter definition presents the approach of this thesis to the concept in a more feasible way. This shows that even though a concept is embodied in different disciplines, their definitions and theoretical ground can be different.

It can be somehow odd to accept the tremendous effect of place on human identity however it is also an output of substantial environment even though is affected by numerous other determinants (Hauge, 2005, p.1). These determinants can be physical, social and cognitive, which are also aspects of place, as well as political, psychological and many others. In environmental psychology, the connection of person's individuality and the place that person experiences, generates the concept of place-identity. This effect of place on the self should not be belittled because "to be without a place of one's own – persona non locata – is to be almost non-existent" (Gieryn, 2000, p.482).

The process of perceiving and internalizing the place leads one to identify oneself through that space or absorb it within one's identity. Prohansky et al defined these perceived and internalized totality as cognitions that shape the place identity and explained that they "represent memories, ideas, feelings, attitudes, values, preferences, meanings, and conceptions of behaviour and experience which relate to the variety and complexity of physical settings that define the day-to-day existence of every human being". They further advised it should not be supposed as "coherent and integrated cognitive sub-structure of the self-identity of the person", it should rather be acknowledged as "a potpourri of memories, conceptions, interpretations, ideas, and related feelings about specific physical settings as well as types of settings" (1983, pp.59-60). Place identity is an intricate combination of various physical, social and psychological happenings within one's cognition similar to other concepts of EP. This

is also crucial in the way of addressing the fragmental and complex structure of all physical and social experience and reflections one has regarding a place. They further discussed this matter by asserting that place-identity is the outcome of "complex cognitive structure which is characterized by a host of attitudes, values, thoughts, beliefs, meanings and behaviour tendencies that go well beyond just emotional attachments and belonging to particular places" (Ibid., p.62).

In order to unfold this notion, it is also essential to discuss the process. Throughout a lifetime one experiences a diversity of places, however, not all of them leave a trace within the self or at least not they are equally affective. What does it take for a place to become a part of its user's identity and what are the determinants that affect the degree of the diffusion? First thing comes to mind may be the effect of time. One might presume the longer time one spends in a place, the more it penetrates through person's identity. In congruence with attachment, the influence of time is undeniable for identity but, it is not enough to merely be present at a place, there are far more critical aspects of the process. The reason behind the occurrence of place-identity is that the role of the individual is greater than only using and documenting a physical setting and its facilities (Proshansky et al., 1983). Individual is not just a static being of the process but rather one of the determinants. Jung explained the process as "a dynamic relationship between person and the physical environment in which the person creates an environment … and the environment in turn gives information back to the person thus reinforcing self-identity and perhaps changing the person in some way" (1964).

Place identity occurs after the person gets involved in the process rather than just being a subject who uses the place. When an individual is perceived as an object like place, there happens an interaction between two objects and new meanings are revealed. Afterwards, these meanings may be consciously or unconsciously absorbed within the self of the user which will change the identity to some extent. Seamon also explained this process as follows:

> *"Place identity phenomenologically relates to the process whereby people living in or otherwise associated with a place take up that place as a significant part of their world. ... Place identity and place interaction are reciprocal processes in the sense that, through place interaction, participants actively engage with place. They come to feel a part of place and associate their personal and group identity with the identity of that place" (2014, p.17).*

Revealing new meanings through interaction of place is actually closely related to another concept called 'sense of place'. Sense of place is generated through time as an outcome of a person's routines (Brinckerhoff, 1994). It is not the meaning that come with the place itself but the one that is created by the users of that place. It is the biased understanding of a person (Hummon, 2012). This is also called place meaning in some of the literature and it has been discussed as a separate concept by some scholars, however in this thesis it is accepted as a part of both attachment and identity. The meaning of place has been discussed for a long period of time and it has been a pursuit for different fields from architecture to psychology and philosophy. Hershberger is one of those who postulates people create their own meaning through interacting with places and he illustrates the reason of changes in meanings as follows:

> *"...the belief that meaning is not contained in the elements of architecture, but rather something which is intended for or attributed to them by human beings; that such meanings may or may not be held in common by those who experience architecture; indeed, that fundamental differences in human experience will cause fundamental differences in the meanings people attribute to their environments." (Hershberger, 1980, p.22)*

Thus, people make their own subjective interpretations for places and while doing so, they use the instruments of language.

As mentioned before, Tuan suggested that "(c)ity people are constantly 'making' and 'unmaking' places by talking about them" (1980, p.6). In the later years he added on that "it is simply not possible to understand or explain the physical motions that

produce place without overhearing, as it were, the speech - the exchange of words - that lie behind them" (Tuan, 1991, pp.685-686). Likewise, it was stated that the thought and speech about those places are what it makes place-identity to progress (Proshansky et al., 1983, p.61). If all other statements have not been proved that people-place bonds and environmental psychology in general is indeed a discursive formation, the last statements must have done it. Almost from the emergence of the concept, researchers were aware of the discursive constructs within the field. Around the same time, Sarbin similarly stated that people shape a consistent identity through narrating the physical settings whilst they "locate" themselves in it (1983). After nearly four decades of the first emergence of these statements, Masso et al. re-expressed "the role of language in shaping the nature, meaning and lived experience of human-environment relations has been treated as central" (2014, p.78). This proves that the development of this concept has been a discursive formation from the beginning and it still is since it continues its development. Giving meaning to places is not only the cause of place identity but is also a consequence of it. "One of the reasons, in fact, why people give meanings to places is the need to discover and evolve their identity" (Manzo, 2005). Making sense of place through linguistic course is accepted as one of the critical aspects in this thesis because of this complex nature of its relations.

Moreover, place identity is affected by social factors such as society and individual differences as well as physical ones. Similar to place attachment, childhood places are one of the foremost influences on identity. "(H)ousehold, the school, the neighborhood, and the play area are all places that are significant in the early socialization of the child and therefore are part of the earliest of his or her space-related cognitions" (Proshansky et al., 1983, p.64). In terms of substantial factors, "light, heat, available space, air and noise pollution and whatever else serves the basic biological and culturally determined environmental needs and expectancies of the person" are some of the features that affect the quality of the physical setting, hence, affect place-identity (Ibid., pp. 76-77). In the light of these, it admissible there is a large spectrum

of physical, social and cognitive factors which significantly influence the concept of place identity.

3.2.2.3. Mutual Relationship

The relation between place identity and place attachment is one the topics that maintains its uncertainty. Within the literature, there are various point of views which are classified by Lewicka as the following:

> *"Sometimes the two concepts are used interchangeably (e.g., Williams et al., 1992), sometimes affective (place) attachment is considered at the same phenomenological level as place identity (Jorgensen & Stedman, 2001; Kyle, Mowen et al., 2004; Stedman, 2002), at other times it is subsumed under the concept of place identity (Puddifoot in: Pretty et al., 2003), or—according to still another view—it precedes formation of place identity (Hernandez, Hidalgo, Salazar-Laplace, & Hess, 2007)" (2008, p.212).*

One may feel attached to a place, but it takes more than liking or attachment to incorporate the place as part of one's self which means place identity. Altman and Low states that attachments inevitably affect identity as well as perception and behavior (1992). There is a certain relation between these concepts and they both have crucial influence on people. Their relation cannot be clearly defined because it is rather a complex interaction that continuously develops. This thesis stands on the aspect that they are related but are also separate notions. Thus, this section will be an attempt to present on what levels they are related.

Figure 3.8., 3.9., 3.10., and 3.11. represents different models of place attachment which were configured by Hernandez et al., based on scholars' statements. Firstly, in Figure 3.8., place identity has an equal status as place attachment when the latter is approached as a one-dimensional concept. Secondly, Figure 3.9 and Figure 3.10 reflect the multidimensional approach, and both indicate identity as a substructure of

attachment. Finally, in Figure 3.11. both place identity and attachment are accepted as subordinate concepts of another one which is sense of place (2014).

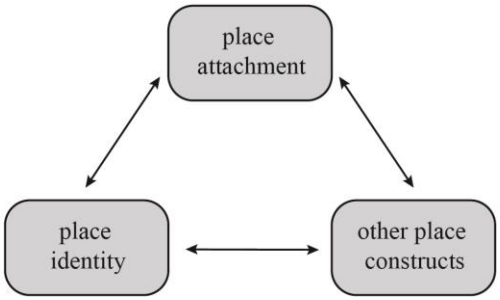


Figure 3.8. One dimensional model (Hernandez et al., 2014).

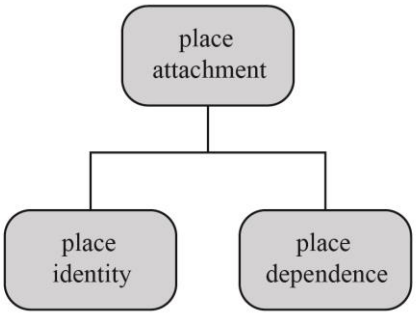


Figure 3.9. Two-dimensional model (Williams, Vaske, 2003).

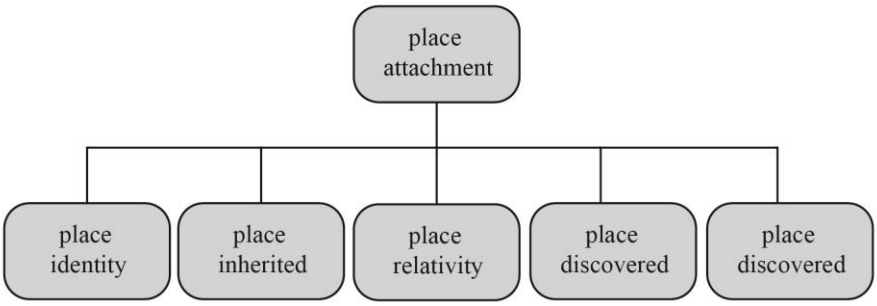


Figure 3.10. Five-dimensional model (Raymond et al., 2010).

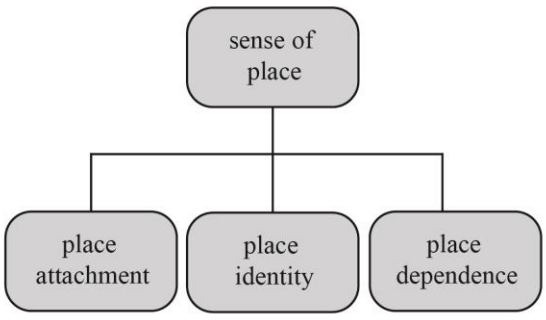


Figure 3.11. Dimensions of superordinate concept (Jorgensen, Stedman, 2001; 2006).

In the previous section, sense of place is explained briefly, and it is made clear that this thesis absolutely does not support the idea of it being superior to place attachment and identity and containing them as sub-concepts. Due to their interactive and complex nature of all three concepts and many more related to people-place relations, these concepts are believed to be on the same level and to foster each other continuously as it is expressed in the one-dimensional model.

The relationship of these two concepts is also explained by Seamon as "one becomes affectively involved with the regularity and familiarity of actions and encounters that contribute to who one is and what his or her life routinely is in relationship with place (2014, p.19). In this explanation, firstly affective bonds occur, so does the attachment and then the reflections of it on identity transpire. On a similar basis, Hauge also stated that identity comes after attachment (2005). However, before these two statements, before a fairly about of time, it was asserted that the foundation of identity is supplied through "behavioral, affective, and cognitive" connections among people and place, supply the foundation (Brown & Perkins, 1992, p.284). These three statements specified attachment ad one of the leadings of identity. On the other hand, identity has the role of affecting attachment as well. If the identity of one is endangered because of a place, one might start to feel adverse emotions towards that place (Giuliani, 2003, p.16). Additionally, identity can cause the generation of positive connection in case the place supports itself.

Furthermore, Randolph Hester, who is an architect and a professor, conducted one of the broadest researches on relationships with place. During the course, which he has been teaching for 35 years, each year he asked students to draw ten most memorable places for them and examine them through various approaches. Then he gathered the data of three decades, he found out childhood places stand out, because they occupy most of our growth and has great influence on our identity (2014, pp.193-194). According to this research, place initially contributes to one's identity then to the attachment of one with the same place. Conversely, similar to the first bundle of

statements, Proshansky et al., construed that powerful positive bonds to places definitely helps people to designate their identity (1983, p.61).

Besides influencing each other, these concepts also have other physical and social outcomes. Humans naturally construct purposeful attachments to specific places, which "situate and secure us in broader social and physical environments, connect us to the past, and influence future behaviours" (Gifford & Scannell, p.23). In addition, place identity affects the emotions, perception and thought throughout the interaction of people and environment (Proshansky et al., 1983, p.67). It should be acknowledged that both concepts have behavioral effects even though the degree of influence may change based on other determinants such as the difference in individual personalities. One example to the behavioral effects can be the urge to preserve a place in case of occurrence of attachment a place. Similar to the assumption of "early mother-child positive bonds will drive mutual positive behaviors across the entire lifespan, … positive affective bonds with one's place should be associated with systematic behavioural tendencies to protect that place" (Carrus et al., p.155). A further assumption is that when powerful connections are generated with a place, people's tendency to act pro-environmentally increases in order to protect that place (Ibid, p.156). People usually try to protect their homes the most which is one of the most crucial places in terms of attachment and identity. All these approaches, including their similarities, repetitions or contradictions, proves that place identity and place attachment are interrelated and both of them greatly influence human behavior.

3.2.3. Personal Space: Privacy and Safety

Personal space is one of the first concepts that has been theorized within the discourse of EP. The concept "has roots in biology (Hediger, 1950), anthropology (Hall, 1968), and architecture (Sommer, 1959)" (Bell et al., 1990, p.228). It originally derived from the studies of Katz (1937) which are about animals and space. However, it was brought in EP due to its relevance to two key objects of EP; people and space. In both of his works that are almost six decades apart, Sommer described it as "the emotionally

tinged zone around the human body that people feel is 'their space'" (1959; 2017). Similar to the other concepts this thesis has tried to unfold so far, there are some contradictions and complexities in personal space because as Gifford stated, "almost nothing in environmental psychology is simple" (1997, p.96).

Explaining the properties of PS can be more beneficial in the way of understanding it. It is a space that encloses a person and limits the entrance of others to that space through its unseeable borders (Bell et al., 1990, p.228). This space moves with the person it belongs to as well as it has the features of expansion and shrinkage (Ibid.). This is the main reason why some of the researchers disagreed the "analogy of bubble" (Uexkull, 1957). Since the concept has its reflections in different fields, there are other analogies. Due to his animal research background, Katz resembled it to a snail shell (1937). Although it is not a valid resemblance for EP because PS is not rigid and static, it is rather fluid and flexible.

PS is also a privacy providing tool according to Altman (1975). Privacy is accepted as one of the main functions of PS. "Privacy is an interpersonal boundary process by which people regulate interactions with others" and it is important for individuals to keep the necessary privacy degree steady (Bell et al., 1990, p.229). If the required PS is not provided, there will be inevitable negative outcomes, which will be discussed further in this section. There are various functions of PS which can be gathered under "two primary sets of purposes" (Bell et al, 1990, p.230). Table 3.2. shows that privacy is one of the protection functions along with preventing the extreme stimulation of both substantial and social attributes, and to prevent other people's interference to one's own free hand.

Table 3.2. *Primary purposes of personal space (Bell et al., 1990, p.230).*

Primary Purposes	
Protection	**Communication**
to avoid overstimulation & stress	to provide nonverbal communication
to provide privacy	to determine the quality and quantity of stimulation exchanged
to prevent interference to behavioural freedom	to determine the type of relationship between individuals, and activities that can be engaged in

One of the second purpose group which is "nonverbal communication" has been raised by Hall (1963). Gifford similarly stated that PS is a message transmission method (1997, p.97). "The distance between individuals determines the quality and quantity of stimulation exchanged, … the type of relationship between individuals, and … the type of activities that can be engaged in" (Bell et al., 1990, p.229). An example to this can be the close distance between couples whereas this distance remarkably increases when one is with an unfamiliar person. As the radius of PS decreases within one's desire, it means one definitely feels safer and one tends to allow more communication and intimate activities. Hall categorized these distances through interpersonal zones (1963). Figure 3.12. shows four different zones, with each of them allowing different distances and activities. The relationship of a mother and her baby is an example of intimate zone where the most comfortable and close relationships occur. Personal zone still offers a sense of comfort and closeness but not as much as the previous one. Relationship with a standard co-worker is an example for social zone. Lastly, an artist doing an interview in front of a group of supporters or a professor giving a lecture in front of students are some cases within public zone. As it is understood from the examples, the ratio of privacy decreases whereas non-verbal communication, such as

hugging or touching, increases from the public zone to the intimate zone. Thus, PS is a concept all individuals constantly operate in their everyday life and activities.

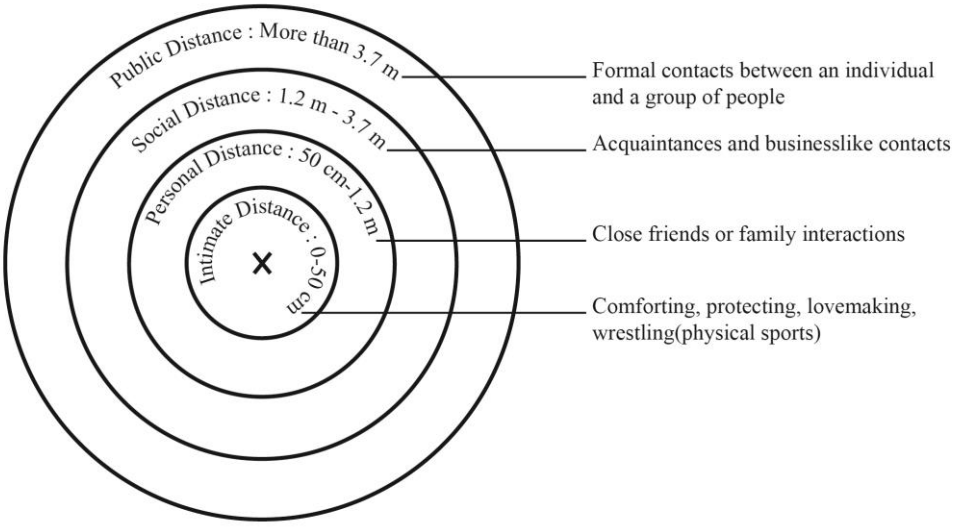


Figure 3.12. Interpersonal distances based on Edward Hall (1963).

Since PS is a concept with both social and physical dimensions, it has determinants from both of them. However, above all, there are some personal factors which are compiled by Gifford as gender, age, personality, disabilities, psychological disturbance. Moreover, attraction, fear/security, power and status are some of his examples for social influences. (1997, pp.101-103). As for the personality factor, if one is an introvert person, one needs more space with regards to extraverts. Similar to this, in case of an emotional or psychological disturbance, one may require wider PS because of one's sensitivity towards interacting with others. Cultural elements also affect PS. For example, in some cultures kissing on the cheek during meetings can be accepted as an act of sincerity and it may not cause any problem related to PS, whereas in another culture the same act may be seen as a violation of individual' comfort zone. All these aside, physical factors have extreme influence on PS as well. In the literature of environmental psychology, all these influences have been examined thoroughly whereas physical dimension occupies a rather smaller place within the literature.

Emphasizing this dimension may lead to acceptance of PS as a more relevant concept to architecture than it already is.

Table 3.3 shows only a very small portion of architectural factors which have influence on PS. In addition to those in the table, how users are affected through the layout of furnishings is also an important aspect of physical influence. "Studies have attempted to define the optimal layout of furnishings for maintaining individuals' feelings of adequate space and for allowing people to regulate their interaction distance from others to reduce unwanted closeness" (Sommer, 2002, p.653). It is important for designs to provide flexible spacing options in order to satisfy different needs of users. For example, in most of the open offices work place of people are limited with separators above desks to provide some sense of privacy and PS in their work environment. If one feels the lack of privacy, safety and PS, one's productivity may decrease.

Table 3.3. *Different physical influences based on various researches.*

Physical Influences	
Savinar (1975)	Males need more space when ceiling height is lower.
Gergen, Gergen and Barton (1973)	People are more likely to touch others when it is dark than under more typical lighting conditions
White (1975)	Personal space increases with reductions in room size
Baum, Reiss, and O'Hara (1974)	Installing partitions in a room can reduce feelings of spatial invasion
Daves and Swaffer (1971)	Individuals desire more space in a narrow than a square room
Tennis and Dabbs (1975)	Individuals appear to use more space in corners of rooms than in the centre

On this matter, the research of Sommer shows that the seats from front and middle part of the classroom have the highest participation percentages (1967). The participation decreases critically on the sides and the back side of the classroom (Figure 3.13.). Because, attention is mostly gathered at the front-middle section, and

it is an area where transmission between students and the teacher mostly occurs (Bell et al., 1990, p.241). Bell et al. stated, “the distance between a teacher and student may affect learning” (1990, p.240). After nearly three decades, with the help of many other behavioral researches on learning spaces, “optimal spacing” is acknowledged as one of the crucial aspects that should be regarded while designing places of education. Thus, usage of some other classroom layout types such as U-shape and clusters rather than the conventional ones increases in the process of time.

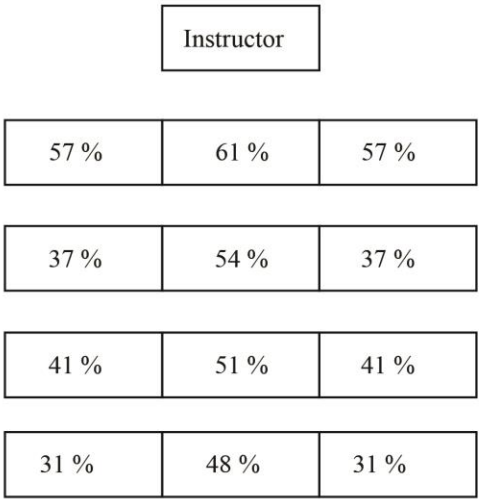


Figure 3.13. Research of Sommer from 1967 showing how seating arrangement of students’ affect their participation to the courses. (From Bell et al., 1990, p.242)

Another physical instance to those which affect social interplays is “sociopetal and sociofugal settings” which are originated by Osmond and refer to two different seating arrangements. Sociopetal settings encourage interaction of people whereas sociofugal settings are the opposite (1957). For instance, conference rooms are usually arranged to provide sociopetal seating since interaction is required during meetings. On the other hand, working spaces of the employees are mostly sociofugal with desks that are arranged side by side, because excessive interaction can be distracting for the employees. In Figure 3.14. it is clearly visible that the bench provides an opportunity

to choose whom to interact as well as sitting by oneself with its back to back seating design.

Figure 3.14. A sociofugal bench (taken by the author).

Since social interaction is generally favorable, sociopetal arrangements are considered better than sociofugal ones (Gifford, 1997, p.97). Notwithstanding, this depends on the activity that takes place and the comfort zone of individuals. “For example, in the reading room of a university library, most of us expect others to work quietly” (Ibid). That’s why in libraries there are usually a couple of different areas that provide spaces for different types of study groups.

Libraries are useful places to discuss PS and its physical reflections due to its multi objective nature. Some people use libraries to be able to concentrate on their study or reading without any distractions from the environment or people around them. Even though they accept the consequences of being in a social space by preferring libraries instead of their own study rooms, they also require PS and their own territory to study efficiently. Territory is often confused with PS because they are similar to each other,

however they are different concepts.[11] Table 3.4. indicates their differences through five attributions.

Table 3.4. *Differences of PS and territoriality (produced based on the information from Bell et al., 1990).*

	Personal Space	Territory
Properties	Invisible, movable, regulates	Visible, relatively stationary, has visible boundaries,
Regulates	How closely individuals will interact	Who will interact
The centre is	The person	The home
Process is	Individual-level	Group-based
Scale	Smaller	Larger

PS is in motion with individuals. It is possible to think it as an intangible sphere that encloses and follows one in case of movement, and the boundaries of it change according to desired proximity and interaction. On the other hand, the territory is a stable and tangible physical location which is appropriated by a person. In this sense, the person behaves in a way to preserve owned territory and chooses whom to access that territory or not. From this act of protection, another concept called territoriality, which is "a set of behaviors and cognitions an organism or group exhibits, based on perceived ownership of physical space," emerges (Bell et al., 1990, p.256). For example, almost everybody is greatly protective over their homes and doesn't prefer strangers to get in the limits of their home. Enclosing the garden with fences is an example of setting the borderline of one's home territory. People can have various territories that are different in terms of their size and degree of ownership. Altman made a categorization as primary, secondary and public territory. Places that are definitely in one's control such as home is a primary territory. Secondary territories are the ones that are shared by other individuals and do not belong to one's absolute

[11] "The concept of personal space overlapped with several existing concepts and some that came afterward : Individual distance, flight distance, proxemics, territory, distancing, defensible space, body buffer zone" (Sommer, 2002, pp.647-648).

authority but can still be personalized in a certain degree. Finally, public territories are not in one's control and are perceived by wide range of people (1975). Libraries can be situated in secondary group. People use libraries due to their supply of privacy as well as closeness to other people who study. İmamoğlu and Gürel suggest "rather than carrels, students in library study areas seem to prefer working at tables that provide visual privacy for their work but are in proximity to others" (2016, p.66). Therefore, while designing a library, how to provide privacy without breaking off the contact of users completely should be taken into consideration in addition to other factors. İmamoğlu and Gürel conducted research, including 78 students, at a library in one of the universities in Ankara and the result showed the discontent of the participants due to lack of proper territories. For the research, a new type of study table was suggested and tested instead of the currently used ones, which did not provide any territorial dividers. Thus, they designed a new prototype table with dividers. The new table provided a defined territory for each user, but "preserved the feeling of working together" at the same time. As a result, the new table design was useful in terms of avoiding the distractions coming from surrounding, creating the required sense of privacy, and defining the territory for each user. The study showed designing by regarding the effects of territoriality, the satisfaction of the users and the effectiveness of the space increases (2016).

Notions of PS and territoriality may not be exactly related to designs of homes but, in other places such as hospitals, libraries, schools and offices providing features that promote these notions is important for satisfactory environments. However, such factors are usually overshadowed by another economic, aesthetic or physical related ones.

> *"Given that territories may be quite beneficial, it is unfortunate that the design of many settings, especially institutions, does not foster these benefits. Most mental hospitals, old age homes, residential rehabilitation settings, prisons, etc. do not contain architectural features or permit behavior that promote feelings of personal territory" (Bell et al., 1990, p.268).*

For example, providing student lockers at schools may help students to feel the privacy and security they need, because they own at least s small space just for themselves, which leads them to study more efficiently. Likewise, defining the workspace of each employee at an office, through some territorial indicators, may create a better workplace environment. In addition to these, designing flexible spaces that enable individual to rearrange according to the desired activities and communication level is a beneficial way of integrating PS into design process.

Acknowledging these effects of architecture is crucial to design places that are satisfactory in terms of providing desired PS to its users. In 1969, Sommer wrote a book called *The Behavioral Basis of Design* with the expectancy of architecture field accepting PS as a keystone, but then he realized that it can never happen. Because there are numerous other circumstances, such as "local regulations, sites, other social factors, budget, materials, and aesthetics", which architecture revolves around (Gifford, 1997, p.114). The aim of this thesis has never been to force concepts of EP as a key criterion into the design process, it is rather to evoke the once acknowledged effects of the designs on the users more profoundly. "Edward Hall remarked that research on interpersonal distance cannot tell an architect how to design a building, but it certainly can provide the architect with information that can be worked into a design" (Ibid.).

3.2.4. Perception and Gestalt Theory

"Humans affect the environment and are themselves affected by it. For this interaction to occur, humans must perceive." (Bell et al. 1990, 27). For the existence of a relationship between people and the built environment, people should perceive the surrounding. In the way of successful comprehension of environmental psychology, studying human perception is crucial. In order to understand the architectural perception of people, firstly the action of perception should be understood scientifically. As Schiffman (2001) stated "We are surrounded by a world of objects and events, and with apparently no conscious effort we sense their presence… it seems

so natural and almost effortless to be aware of the environment that we tend to take sensation and perception for granted." (p. 1). However, perception is not as simple as one supposes. Even the simplest actions such as walking or catching a ball depends upon the process of perception. Understanding this process have been a concern of psychology for years. It is the outcome of the interactions between senses and brain. In the book *Sensation, Perception and Action* Zanker explained that behaviors of people are examined and comprehended with the help of different practices that deals with interactions of brain and perception or mind. Moreover, he defines it as a connection between the physical environment and psychological situations (Zanker, 2010, 1). The process of perception is extensively related to the functions of brain and mind. It is provided by the receptor cells which captures the stimuli and transmit it to neural system. According to the received information, brain constructs its own meaning. This process proofs that humans play exceedingly active role in this process. Schiffman expresses this process as follows;

> *"… Light is shaped and formed by objects it encounters; therefore reveals more about the things around you than about the light source itself… The energy out there… must be channeled to the receptors specific to it. Light is focused on the retinae of your eyes to generate a useful image… you usually play an active role in this process… and you perceive. You make the most reasonable interpretations you can, given the information of your senses" (p.2.).*

The necessity of light for the visual perception to exist has been clarified in both the quotation above and Figure 3.15. taken from Anderson's book called *Cognitive Psychology and Its Implications*. Anderson likewise explained that the light energy that comes from outer sources is the reason for the start of perception (2010, p.61).

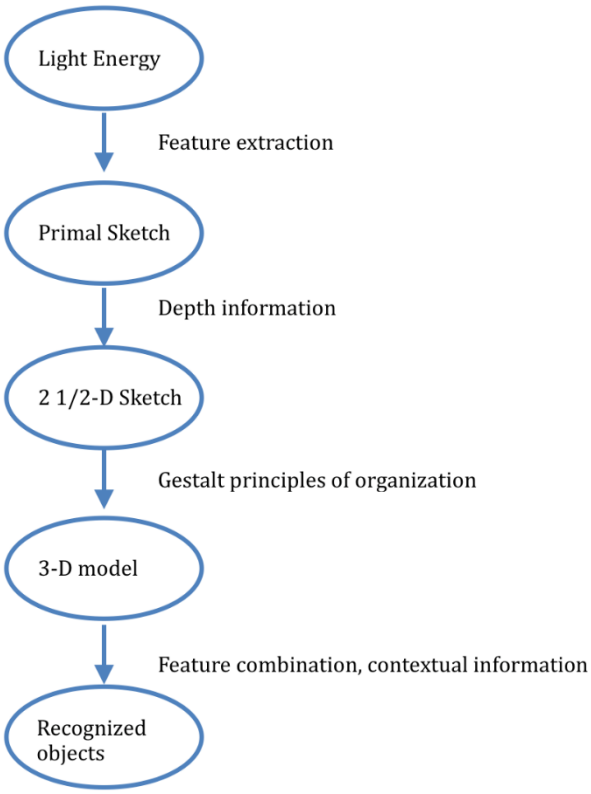


Figure 3.15. "How information flows from the environment and is processed into our perceptual representation of it. The ovals represent different levels of information in Marr's (1982) model and the lines are labeled with the perceptual processes that transform one level of information into the next" (Anderson, 2010, p.61).

Without a presence of light as it is impossible for people to visualize any image of their surroundings. This is basically the eyesight which is the sense of seeing. This proves that individuals perceive their physical environment through senses, however, one should not interweave sensation and perception. Two concepts are substantially different. As Levine (2000) demonstrates, sensation is the process of identifying a stimulus through organs such as eyes, ears, nose, whereas perception indicates the process of construction the data gained by these senses (p. 1). Sensation is the initial recognition of the environment. Multiple sensations merge in order to form an extensive perception. Thus, perception refers to a higher level of complexity in collecting and processing the information whereas sensation is the simple and initial understanding of the environment.

There are many different approaches to perception. The most popular one is Gestalt Theory which emerged in the beginning of the 1910s in Germany. Anderson stated, "we tend to organize objects into units according to a set of principles called the gestalt principles of organization" (2010). He further defined some of those doctrines, which clarifies the process of brain interpreting a visible display to a perceived item as summarized in Figure 3.16.

Principle of Proximity	**Principle of Similarity**	**Principle of Good Continuation**	**Principle of Closure & Good Form**
Four pairs of lines are perceived rather than eight separate lines. Elements close together tend to organize into units.	People tend to see this array as rows of o's alternating with rows of x's. Objects that look alike tend to be grouped together.	Two lines, one from A to B and the other from C to D, are perceived, because the eye tend to choose the path which has better continuation.	The drawing is perceived as one circle occluded by another, although occluded object could have many other possible shapes.

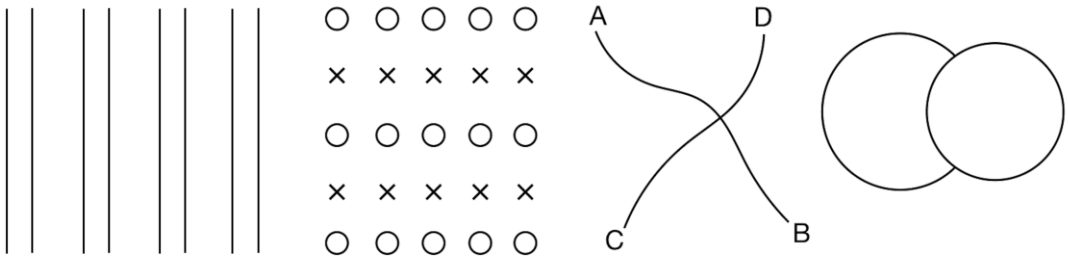


Figure 3.16. Illustrations of the gestalt principles of organizations (Anderson, 2010 pp.41,42).

These four principles demonstrate that perception has its way of portraying things different from their original state. Rather than seeing each element one by one, the mind interprets them in a way that it assumes to be more logical. Through perception mechanisms of the brain, a more vibrant interpretation than the existing condition is generated from the data gathered from the environment (Sussman, Hollander, 2015, p.59).

According to Levine (2000) the theorem opposes defining perception as a reduction of the totality of personal sensations into elementary components by asserting a

compelling factor of the interaction between stimuli. Furthermore, he illustrates Gestaltists advocate that regarding the intrinsic features of the environment that are related to each other, perception occurs in a totalitarian and united way (7-8). Advocates of this theorem rejects the reduction of complex perceptual process to smaller basic units, they believe that the whole is greater than the sum of its parts. In viewing the "whole," a cognitive process takes place and the mind makes a leap from comprehending the parts to realizing the whole. As an example, M. C. Escher's Fish,Duck and Lizard painting can be given (see Figure 3.17.). At first appearance the painting is perceived as a whole pattern rather than recognizing fishes, ducks and lizards separately.

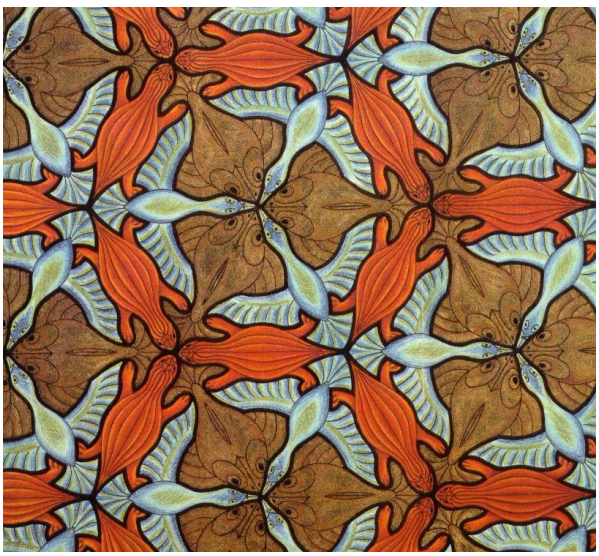


Figure 3.17. Fish, Duck and Lizard painting Esher, M. C. 1948.

This totality principle of Gestalt Theorem is also valid in architecture, because when an individual experience a space, the surrounding stimulus is perceived as a whole rather than being recognized one by one. For example, the layout, furnishing and colors may not be pleasing individually, but one may get affected in a good way after the perception of the space as a whole. There are so many stimuli in the surrounding, but one usually fails to perceive each of them as well as the effects of them. One rather perceives the environment in a sense of totality and acts correspondingly. Thus, how

people perceive the spaces definitely influence their behavior in that space. The intensity of this effect's changes from person to person according to individuals' personal factors and other peripheral factors. Lang mentions this in his book Creating Architectural Theory as "The process of perception, cognition and spatial behavior are effected by the competencies of the individual and the group of which he or she is a member, as well as by the structure of the built environment" (1987, p. 103).

Since there are various factors affecting perception and the determinants differ from an individual to another or a setting to another, the perceived environment varies as well, hence it is a subjective happening. "Perception is indeed a very complex process, that involves gathering information through our senses; processing it… based on past experiences and formulating particular responses" (Pop, 2013). It is an intricate and creative process, which helps people to make sense of the world around them. Physical and social knowledge that is gathered throughout one's life affects the way one interprets the surrounding. Lee explained the process of perception as "learnt, selective, dynamic, interactive and individual", and "a complex interaction of both physical and social factors". She added that perception and behavior are in a continuous circulation where both affects each other (Lee, 1973, pp.113, 114).

Besides, one's conscious or unconscious cognitive constructions have impact on perception as well. As shown in Figure 3.18., it is both possible to categorize perception as a sub-structure of cognition and a part of the process of it (Pop, 2013). When this is discussed in terms of architecture, built environment is an engaged part of human life and it has tremendous role in the cognition. Every social experience takes place at a physical place; thus, places are inseparable portion of the cognition. The collective data gathered from experiencing places is absorbed within intellection

and is put into operation in case of new instances related to them and influences one's perception, hence decision-making and behavior.

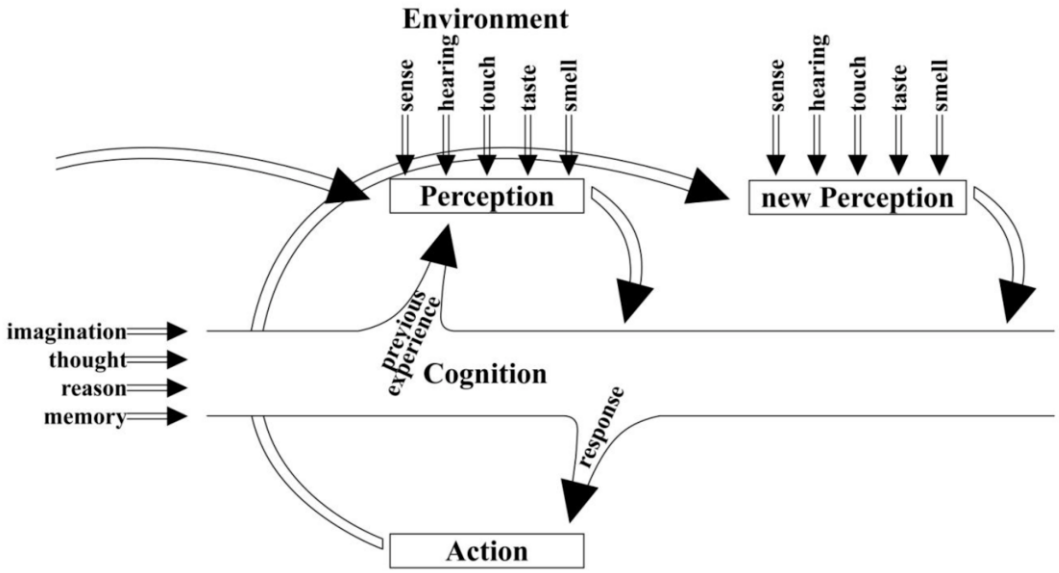


Figure 3.18. Perception and cognition interplay (by Pop, 2013).

The perception of the surrounding is portrayed at three dimensions by Appleyard. First one is the operational level, where one tends to distinguish the physical attributions of a place which affect one's activity in a positive or negative way. Secondly, the responsive level is where one reacts in some way to the physical attributions. Lastly, during inferential level, "we inferentially match the environment with our preconceived mental model of expectations" and deduce a conclusion to define that place, which can be true or false (Appleyard, 1973, p.95). For example, when a person enters a building with the aim of going to the upper floors, initial action is to look for the vertical circulation systems. If the location of these circulation systems is not well thought in design process, one may have difficulty to find and complete the desired action. Thus, through this experience, s/he perceives this shortage of that structure in the first place, and with the help of previous experiences, s/he labels the place as poorly designed without regarding any other attributions.

No matters how well a place is designed, it is satisfying as long as it is perceived and used with its properties, functions and meanings it provides. Therefore, it is essential

to consider different perceptions during design process. The ultimate purpose of architecture is to provide settings where people perform the activities they desire or require, and if a function or the meaning designated to a place is failed to be recognized by its users, then, there can be a miscommunication between the design and its user. "The space ought to speak the same language as the one who uses it and it should be our duty to understand that language" (Pop, 2013). For a satisfying built environment, it is essential to regard the perception of the users and design accordingly.

3.2.5. Colors and Emotions

Throughout daily life, people are constantly in spaces that have been designed for them when they are at home, work, school or basically anywhere. Some feelings emerge inevitably during the flow of life. To what extend these individual's emotions are influenced by the spaces surrounding them is questioned in this section of the paper. According to Küller (1980) the word emotion indicates person's complicated conditions, including both sensations such as anger, fear, sadness, happiness and different physical behaviors. He also says that "these are not strong emotions that are easy to notice and identify, but rather the delicate result of a persistent everyday influence, which is probably of far greater impact than we might at first thought..." (p. 87). It is certain that humans are affected by the spaces they are found, and their emotions are also influenced during their presence at a place. For example, every student feels bored during lessons from time to time. The reason of this boredom may be lack of interest to the subject or other personal factors, however the surrounding qualities of the classroom also influence student's inner world. Insufficient daylight caused by the wrongly location of the building or windows, a poorly designed interior space, the colors of the walls and the furniture can be the examples of effects on student's feelings during a lesson.

Perception of the environment differs for individuals from one another. There are variety of factors of this diversity including personal, cultural and physical effects. Color is one of the most forceful factors of the physical environment. People make

choices through series of variables and for the physical choices color may be the most influential one. It is in the daily life of all humans, even when they are selecting clothes. Dressing in black for funerals can be the most specific example. Color is a type of energy that effects human mind, emotions and behavior due to the fact that it is created by light. For that matter, "light and colour are inseparable, and in design of the human habitat, equal attention must be devoted to their psychological, physiological, visual, aesthetically and technical aspects" (Mahnke, Mahnke, 1987). As well as effecting our daily life choices, colors also have a huge impact on our perception of the space. That is why it is extremely important to consider the effects of colors during the process of design. For instance, it is a common sense that red is more arousing than the other ones and blue has a more calming impact. These are deductions which have been proved through several scientific studies, rather than assumptions. In 1957 it has been revealed that the stimulating effect of red is higher than blue on the cortex by R. Gerard (Mahnke, Mahnke, 1987, 4).

The color, for ages, contains meaningful and understandable clues of life. Rather than seeing people, the color that represents the real thing and the shared knowledge of what it means is used as a way of continuing a process of social communication, an active role in all aspects of social life. As a natural partner, color is turning into a different language for people. In the absence of any written information, people can understand and be able to create a lasting subconscious effect with stimulating, informative or directive messages that are intended to be transmitted using colors. The earliest examples of the symbolic colors used since ancient times were found in the colorful animal figures found on the walls of the small maids dating back to the age of the in Lascaux and Altimara. The colored images depicted on the intermediate walls constitute the basic message format of the primitive period. Old people used color for magical, visual impression during worship, to be concealed from their thoughts, or to be frightening, to respond to beautifying and beautiful instinct (Ustaoğlu, 2007, 28). Excessive number of examples can be given from art to architecture that use colors to reflect emotions and stir different effects on the people.

The effects of color on the surrounding we live in are evident. “It not only helps us to define our personal spaces, but it can also affect our temperaments and our reactions” (Babin, 2013). It affects people’s choices of objects or other properties as well as affecting their psychological and emotional well-being.

> *“Since the beginning of recorded time man has believed in the healing power of color. The power of the sun and rainbow were related to divine forces. In many primitive religions the sun was worshiped. Sunbathing was even practiced in ancient times. Early in time our ancestors observed that sunlight sustains all life, and that without it there would be death” (Mahnke, 1996, 29).*

Scholars of color theory and color psychology explains that colors affect people’s moods whether in residential or commercial usage. “For example, the color orange is believed to evoke feelings of hunger, while the color purple is readily associated with royalty” (Babin, 2013). All colors have meaning and can be correlated with certain moods and temperaments.

> *“Yellow is thought of as ‘warm’, because it is associated with the sun, whereas red is thought of as ‘warm’ because it is associated with fire. It seems plausible, therefore, that although people do not necessarily think of the color of fire as red, nonetheless they do associate red color with fire. Similarly, they do not necessarily think of the color of the sun as yellow, and yet they do think of yellow, on some level of consciousness or sub consciousness, as of a ‘sunny color’” (Gage, 1999, 23).*

In order to understand human beings’ response to color, it is beneficial to present an experiment that has been provided by Rikard Küller. In this experiment he compares two opposing spaces by means of color. He summarizes his experiment as it follows:

> *“The research subjects, six men and six women, were places in two rooms in balanced order for a period of three hours. The one room was grey and sterile, the other colorful and diversified... Measurements taken... showed that the subjects generally experienced a lack of emotional control in the colorful*

room. Thus, it was demonstrated that coloring... of the interior space might have a profound physiological and psychological effect" (Küller, 1981, 101).

There have been outnumbering studies in order to examine influences of color and other effects on perception. Accepting the findings of those studies on the field, it is obvious that color has a huge influence on the space perception of people. Hence, it is very essential to recognize these effects while designing spaces for them and build in accordance with this point of view in order to design spaces that meet the needs and provide required actions of people.

3.3. Compilation of The Outcomes: Status of The Objects of Environmental Psychology

Throughout the third chapter, the objects of the mutual ground of EP and architecture and the concepts that derive from these objects are discussed in terms of their discursive emergence, development, importance and influences. This chapter reveals that the discursive process of this field and these concepts is legitimate even though it is required to approach to these concepts from a different perspective. The revealed relevance of all these concepts (place attachment, place identity, place-space meanings, behavioral effects, perception, personal space) proves them to be embraced in the discourse of architecture without leaving aside their interconnected relationships. In that sense, the most outstanding medium where these discursive formations can gain their status within architecture field is considered as the education. Thus, it is important to reevaluate the role of architecture education and examine its factual situation in terms of subsuming EP.

CHAPTER 4

RETHINKING EDUCATIONAL COMPONENT OF ARCHITECTURE

Until now, the interaction of EP and architecture has been scrutinized through discourse analysis which is the theoretical backbone of this thesis, however, the complex interaction of these two fields would be incomplete with only theoretical discussion. In this thesis, the existence of the discursive concepts, which are analyzed in the third chapter, will be discussed within architecture education rather than the practice of architecture, unlike the common tendency. Because education is the medium where the basic knowledge required for the practice and the essence of architecture is taught. Thus, in the first part of this chapter, the basics of architecture education and the importance of EP in education will be discussed. Secondly, the current status of architecture education in Turkey will be investigated in terms of its inclusion of EP based courses. Then, in the light of the findings of the aforesaid case study, methods of integration for these two fields will be deliberated.

4.1. Architecture Education and the Importance of Environmental Psychology

Architecture is a discourse due to its composite nature because it is founded on complicated concepts and their intertwined relationships. It is a field that encompasses a variety of different concepts and approaches that are adopted from various other disciplines. The purpose of architecture education is to provide this knowledge so that the students can gain the required way of thinking to design satisfactory environments. In his book Ecology and the Architectural Imagination, Brook Muller explained the multidisciplinary nature of architecture education as follows;

> *"In schools of architecture today, where one imagine a high degree of interdisciplinary outreach commensurate with the enterprise, there is enormous work to do in comprehending manners and languages of those in*

> *other fields. Architects amplify a necessary fusion of humanities and sciences: physics, tectonics, history, aesthetics, design communication, sociology, ecology, other" (2014, p.1).*

Thus, it is important to provide a combined knowledge of creative arts, humanities, social sciences, physical sciences, and technology within architecture education. "Design education in architecture and its allied disciplines is the cornerstone of the design professions that make major contributions to shaping the built environment of today and of the future" (Salama, 2016).

Because of this versatility within the field, there are many approaches to the educational component as well as the practice. For example, in some approaches, it is accepted as a more artistic field that prioritizes aesthetics whereas it is acknowledged as a more structural field where form and tectonic properties of the building are more considered. Various opinions from different aspects are expressed when the curricula are discussed and "within reasonable time and resource constraints, often negotiations occur along the line of what topics are absolutely needed to be known" (Rowe, 2002, p.26). However, it is not an accurate approach to isolate one of the many dimensions of architecture and throw others out of focus. Human factors and the perspective of the user are undoubtedly within these dimensions.

> *"Students have an especially difficult time understanding that design, while a creative endeavor, is not a personal expression of creativity. Professional designers sometimes forget that the client has a lot to say about what will happen in solving the design problem. It is not a profession, such as painting, sculpture, and other fine arts, where the artist is free to create form his or her head without thought of pleasing others" (Piotrowski, 2011, p.19).*

Hence, engraining in an inclusive perspective through education is essential for future architects to design with the conscious of all indispensable aspects.

The human aspect, which includes the interaction of the users and design and the effects of them on each other, is one of the fundamentals in architecture because

ultimately, the design is done for an individual or a group of users. Without considering the human aspect, architecture becomes inhuman and industrialized.

> *"The architect has to create spaces that meet the necessary environmental conditions in order to respond to the needs of the user in space planning. User requirements are abstract concepts that cannot be observed. To understand user needs, we need to know the behaviours of the people who use the space and the reasons of these behaviours. In short, user needs can be examined under two headings, physical and psycho-social needs" (Uzunoğlu et al., 2017).*

In this sense, EP is an essential instrument because its focus is on person-environment relations as well as the behavioral effects of the built environment on its users. "Creativity of architecture could serve humanity better if architects were more aware of ecological knowledge" (Felson, 2011). Since the main purpose of architecture is serving its users it is important to embed the environmental and humane perspective within itself. Moreover, the architects should never forget about the responsibility towards both the environment and people. "Environmental sensitivity is at the heart of the ethical and social responsibilities of architects" (Pressman, 2012, p.57-58). Designing while keeping this tremendous influence of the built environment on the psychology and well-being of the individuals and the society in mind while not neglecting structural, aesthetical, economical, or technological dimensions is the key to a satisfactory and durable design.

> *"Architectural design education includes all these aspects in the curricula composed of fundamental courses for developing design knowledge, science and technology-based courses for scientific formation, artistic based courses for creating and developing architectural expression and finally architectural design courses as being the combination and synthesis of all" (Demirbas and Demirkan, 2003).*

However, in time, some of these aspects can be prioritized based on the general approach to architecture education because "each and every discipline has been in continuous search of the 'right' way of formalization of education both content and skill wise (Sorguç et al., 2019). Since the paradigms of architecture shift over time, the concerns of both the practice and theory change which naturally affects the subjects included in the education as well. Because "what is valued in the profession … is reflected in the architecture schools, and of course vice versa" (Morrow, 2005, p.46). As an example, Ruth Marrow explains that in Britain The Royal Institute of British Architects and Architects Registration Board document Criteria for Validation (RIBA ARB 1997) can be accepted "as an outline syllabus for schools of architecture" and it "is a good indicator of where the current emphasis lies." She further explains that "within that document 'people issues' are fragmented and vague, thus diminishing their importance in the minds of those who teach architecture". This causes 'people issues' to become a minor subject in the curriculum rather than being ingrained (Morrow, 2005, p.44). Since "architecture education and especially design education has always been a controversial issue and each school has its own way of structuring their curriculum," it is important to encourage integrating human factors through EP to architecture education (Sorguç et al., 2019, p.144).

"(A)rchitectural psychology is a fine instrument and very much needed" to prevent the problem of dehumanization of architecture and "ARCHITECTURE and PSYCHOLOGY, both with capital letters, can work together" (Edberg, 1973, p.213). Since Edberg expressed the last statement four and a half decades ago, these two fields have improved their association, however, through a general overview, it is assumed that this association is not balanced and most of the fundamental concepts of EP are still not integrated to the architecture education.

> *"An understanding of users' needs and the nature of the relationship between user and space should be implicit part of the architecture curriculum. Study of how people perceive and interact with space is integral to the history of architecture, architectural theory, professional practice in the design studio*

and environmental studies. Yet even some of the most basic principles that lie behind how people perceive space, for example in relation to the senses and sensory impairment, are rarely addressed in the architectural curriculum. ... User issues are fundamental to the making of architecture. They must therefore become a more explicit part of the study of architecture." (Morrow, 2005, p.44).

Education should be remodeled to involve a broader sense of the environment and "programs should be developed so that students can recognize that the completion of the building, which used to be the end of the design process, is a transition point to a new person-environment relations, in other words the beginning of environment sustaining design" (Takahashi, 2000, p.233). On a similar basis, "giving the desired replies to the changing demands (of the users) depends upon the architect's knowledge and experience, (and) (t)he institutions where the vocational knowledge of an architect is taught are the universities" (Yüksek, 2013). Thus, the necessity for a critical examination of the current status of EP in architecture education arises based on the assumption of the inadequacy of two fields' association.

4.2. Current Status of Environmental Psychology in Architecture Education in Turkey: Case Study

4.2.1. Research Aims

The primary purpose of this case study is to explore the level of integration of EP to architecture education in Turkish universities. With this purpose in mind, the following matters have been investigated throughout the research:

- Percentage of the courses dedicated to,
- Percentage of the courses that include concepts of,
- Percentage of the compulsory and elective courses that are related to,
- The most integrated concepts and subjects of,
- Deficiently integrated or not integrated concepts and subjects of,

EP.

The study was formulated around three research hypotheses, which transpired from the literature review in the previous chapters, and personal experiences as well as observations.

Hypothesis One: The courses that teach about EP are generally elective.

Hypothesis Two: The courses that teach about EP mostly concentrate on some mainstream concepts such as sustainability.

Hypothesis Three: There is a lack of integration of the concepts of EP to architecture education in Turkey.

4.2.2. Research Methodology

As the case study, syllabi from 20 departments of architecture have been scanned in order to discuss what levels EP has been integrated into architecture education. Since the aim was to make a general scanning throughout Turkey and it is improbable to examine every department of architecture, 20 of them have been chosen. They have been selected from different backgrounds to include different approaches to architecture education. In this manner, the location of the universities has been taken into consideration, because of possible regional effects on the approach to architecture education. Figure 4.1. shows that universities, which have been selected from 10 different cities in Turkey; 13 universities from 3 metropolitan areas and 7 universities from 7 smaller cities. This thesis has no intention to compare the types of universities, however, 12 of them have been chosen from state universities whereas 8 of them from foundation universities just to provide diversity (refer to Figure 4.2). In addition to these, while making the selection, internet access to the latest version of the syllabi had an important role. The courses that are examined have been limited to the undergraduate courses from the years 2018-2019, and all graduate courses have been excluded from the analysis due to the fact that graduate studies are discretional. Further analysis for the graduate courses is suggested for a broader analysis in the future.

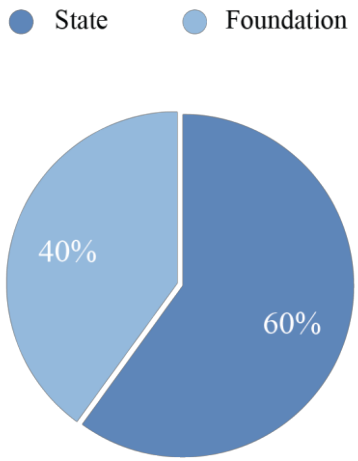


Figure 4.1. Distribution of the selected universities based on the type of the city.

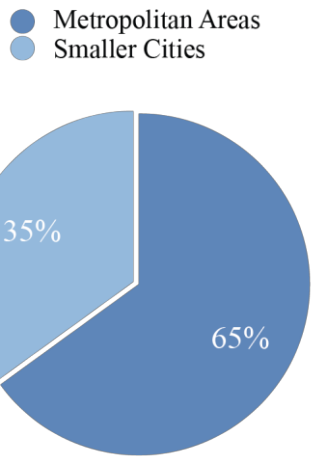


Figure 4.2. Distribution of the selected universities based on the type of the university.

The examination revolves around 4 different dimensions; (1) type of the course, (2) level of relevance, (3) content of the course, (4) fundamental concepts (refer to Figure 4.3).

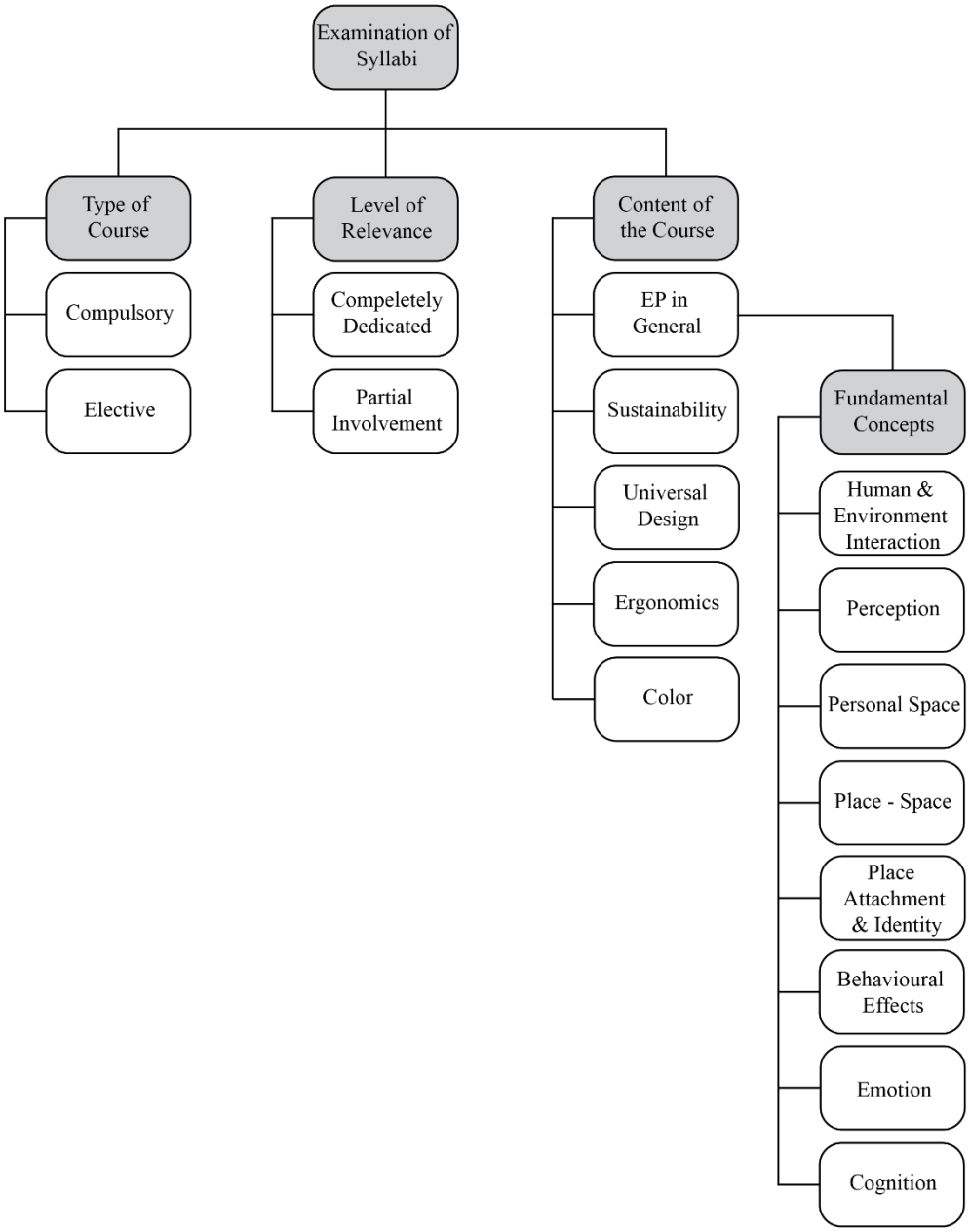


Figure 4.3. Dimensions of the analysis.

Firstly, the *type of course* has 2 measures which are compulsory and elective. Without any distinction, all courses, either it is 'compulsory' or 'elective', are investigated. Why the type of the course is important? Because students' fields of interest are various and there are numerous elective courses accordingly. Therefore, if a subject is

only provided in elective courses, the only way for a student to learn about that subject is to take the relevant course. On the other hand, if a subject is taught in a compulsory course, then it is possible to say - by disregarding other factors that can influence the learning of the students - all architects that graduated from that specific university, contain the knowledge of the aforesaid subject.

Secondly, the *level of relevance* is a crucial dimension. 'Completely dedicated' courses are the ones where the concepts of EP are discussed throughout the semester, whereas in the partial involvement courses, only one or some of the concepts are discussed for a limited duration during the semester. For example, in design studios, EP can only be partially involved because there are various other subjects to cover throughout the semester. If EP is only included in the 'partial involvement' courses, students may lack the knowledge to embrace the important concepts. Thus, it is an essential dimension for this case study.

The third dimension is the *content of the course* which contains five measures. This dimension is the summarized version of the course descriptions, which are taken directly from the syllabi and are represented in Table 4.1. During the examination, some of the concepts of EP are more noticeable because they are more included in the course descriptions or outcomes given in the syllabi. These concepts are 'sustainability,' 'Universal Design,' 'ergonomics' and 'color'. Apart from those, the courses which contain concepts such as place-space, place identity, place attachment, personal space, human-environment interaction, user needs, user psychology are categorized as 'EP in general'. For some courses, 'EP in general' may also include one or some of the other four concepts, however, those four measures cannot contain any of the other measures by no manner of means.

As the final dimension, the concepts, which are categorized as 'EP in general', are gathered under the name of *fundamental concepts.* This dimension consists of eight measures which are human-environment interaction, perception, personal space, place-space, place attachment and identity, behavioral effects, emotion, and cognition.

In this final aspect, the status of these concepts, which are explained individually and in relation with each other in the third chapter of the thesis, is examined in terms of their inclusiveness in the course descriptions and their comparative analysis is executed.

With respect to these, results have been categorized under different combinations of the measures indicated above and hypotheses were evaluated based on the results.

4.2.3. Results From the Analysis of Architecture Courses' Syllabi and Discussion

After analyzing the syllabi, 100 courses were found as related to EP in total. All necessary information about the universities and the courses such as the name of the courses, course descriptions, type of the courses, level of relevance and content of the course are represented in Table 4.1. All other diagrams and figures, that are used in this section, about the research are generated based on the information from the aforesaid table. Throughout this section, the results are gathered on different dimensions and each hypothesis is discussed accordingly.

Table 4.1. *Analysis of architectural courses' syllabi from 20 different universities.*

Universities	St.	Fn.	Name of the Course	Course Description / Outcomes	Types of Course		Levels of Relevance		Content of the Course				
					Comp	El	CD	PI	EP in G.	Sust	UD	E	Cl
Balıkesir University	X		Architectural Design VII	Designing and planning by being sensitive to the physical and social environment	X			X	X				
			Environmental Psychology	Explanation of psychological effects of the built environment on humans, and methods which assist to examine the needs and psychological reactions of the users.		X	X		X				
			Barrier-Free Design	Teaching the principles of designing barrier-free places for disabled people. Raising awareness on the barrier-free living of people from different ages, within the context of Universal Design.		X	X				X		
Başkent University		X	Sustainable Design	Teaching theoretical knowledge about sustainable architectural design, and how to carry out research and design on the basis of environmental and social sustainability.	X		X			X			
			Design Studio VI	Teaching how to interpret architectural program with regard to socio-cultural values, environmental relations.	X			X	X				
			Perception of City and Criticism	Teaching the knowledge about architectural and urban perception and identity and related concepts.		X		X	X				
			Space Perception in Architecture	Concepts of space and perception, Cognitive and behavioral theories		X	X		X				
			Design for Disabled	Teaching accessibility standards for disabled. Improve awareness in terms of disabled during architectural design process. Improve knowledge on identifying mistakes on existing buildings and adopt Design for Everyone Principle.		X	X				X		
			Architecture and Aesthetics	Learn basic information and theories related to aesthetics and architecture. Semiology of architecture, space and perception, sociology and public role of architecture		X		X	X				
İstanbul Bilgi University		X	Architectural Design I	Interpret and differentiate the effects of different spaces on human body and perception by means of various materials.	X			X	X				
			Environment Conscious Building Design	Teaching energy efficient building concepts and environmental design strategies.	X			X		X			
			Architecture for Social Change	Instrumentalizing architecture to create a social awareness and benefit.		X		X	X				
			Sustainability and Climatic Design in High Rise Buildings and Shading Devices	Environmentalism and sustainability philosophy, sustainable building principles and high rise buildings. Bio climatic architecture, climate factor for high rise building design.		X	X			X			

Universities	St.	Fn.	Name of the Course	Course Description / Outcomes	Types of Course		Levels of Relevance		Content of the Course				
					Comp	El	CD	PI	EP in G.	Sust	UD	E	Cl
			Green Strategies	Sustainability will be discussed within the context of architecture, green design principles, low-energy buildings, environmental consciousness, sustainable development, sharing economy and re-use, re-cycle, up-cycle.		X	X			X			
			Responsive Environments	Have a basic understanding of the concepts from responsive systems and human interaction.		X		X	X				
			Aesthetics of Place	Understand and recognize the aesthetics of built environment, and appreciate the importance of "place"		X		X	X				
			Architecture without Barriers	Provides an awareness of design for all, gives a perspective about inclusive design and introduces the students with the fundamental approaches to integrate these principles with design.		X	X				X		
Bilkent University		X	Architecture and Society	Investigation of societal and environmental aspects and determinants of architectural design.	X			X	X				
			Architectural Design Studio VI	Includes design solutions for sustainable and aesthetic built environment.	X			X		X			
			Space and Culture	Investigations on the relationship between culture and the built environment.		X		X	X				
			Current Issues in Architectural Design	Experience, Perception and Memory of Space, Sustainable Design, Architecture for People		X		X	X				
Cukurova University	X		Arch. Design 4	Teaching accessibility, ensuring compliance with standards and regulations.	X			X			X		
			City And Culture	Gains skills for explaining and evaluating relationships between human beings and architecture		X	X		X				
			Barrier Free Design in Architecture	Make design for individuals with disabilities.		X	X				X		
			Relationship of Interior-Equipment	Ergonomics, interior analysis of human-action-form relations according to the request and needs of the user		X		X				X	
			Ecological Architecture	Relationship between the environment and energy, ecological principles in architecture		X	X			X			
Dicle University	X		Architectural Design VII	Sustainable use of resources and environmental issues of architecture and urban design and architecture responsibilities in connection with the basic principles of ecological understanding.	X			X		X			
			Meaning, Form and Architecture II	Capture the semantic strings forming the form while the architectural product is being built		X		X	X				
			Architectural Environment	Environmental factors, human environment relation		X		X	X				

Universities	St.	Fn.	Name of the Course	Course Description / Outcomes	Types of Course		Levels of Relevance		Content of the Course				
					Comp	El	CD	PI	EP in G.	Sust	UD	E	Cl
Gazi University	X		Architectural Project VI & VII	Interpretation of the architectural program in relation with social, cultural and environmental factors in an urban context	X			X	X				
			Arch. Design and Analysis of Environment	Analysis and interpretation of relations between architectural design and environment.		X		X	X				
			Solar Energy App. in Buildings	Taking precautions for energy economy, maximum benefit from sun		X		X		X			
			Concept of Place in Architecture	Conceptual framework of place and space		X		X	X				
			Architectural Design for Handicapped	To adopt 'Design for All' principle in new design and improve the vision on determination of architectural defects on existing built environment.		X	X				X		
İstanbul Technical University	X		Project 2	Relationships among human-nature-culture within the scope of environment, Sustainability, universal design, Participatory design	X			X	X				
			Project 3	Relationships among planning, design and user. Relationships of identity-meaning- concept-form.	X			X	X				
			Project 5, 6, 7	Design aspects including program, space, identity,	X			X	X				
			Accessibility	Accessibility design-universal design, design criteria for the disabled and elderly are given	X		X				X		
			Architecture and Psychology	User needs and psychological fundamentals in architectural design. Theories of environment-behaviour relations. Privacy, safety, personal space, territory mechanisms in the use of space.		X	X		X				
			Color in Design	Color and its theories, color in designed environment		X		X					X
			Emotional Design	The relationship between emotion and design, the concepts of emotional responses, connections, associations and attachment		X	X		X				
			Environmental Design for the Disabled and Elderly	New standards and design criteria of the urban environment for the disabled and elderly.		X	X				X		
			Environmental Psychology	Concepts of communication, theory and space; issues of environment-behavior: environmental perception and cognition, personal space, appropriation, privacy, place attachment, social interaction, cultural components that shape behavior in the interior space; new concepts and sustainability within the field.		X	X		X				
			Social Psychology	Definition of social behavior and social psychology. Individual processes.		X	X		X				
			Social Transformation, Gender and Space	Human perception and environmental experience, place and identity		X		X	X				

Universities	St.	Fn.	Name of the Course	Course Description / Outcomes	Types of Course		Levels of Relevance		Content of the Course				
					Comp	El	CD	PI	EP in G.	Sust	UD	E	Cl
			Theories of Architectural Design	Theories taken from those fields: social and cultural, behavioral theories, theory of privacy, territoriality, personal space-social space theories		X		X	X				
			Theory of Color	Colour perception and cognition, spatial perception, space-colour relationship, space identity		X		X					X
			Urban Identity and Image	Concept of perception, cognition, image and identity, place identity and urban identity		X		X	X				
İzmir Institute of Technology	X		Ecological Studies in Architecture	Ecological approach and its reflection to architecture, sustainability		X	X			X			
			Design principles of Energy efficient Building	Principles design of energy efficient building		X		X		X			
			Spatial Perception and Representation	Relationship of architectural space, perception, and representation, spatial perception developed in the field of philosophy and psychology		X	X		X				
			Environmental Psychology	Primary concepts, the psychological and behavioral effects of physical space.		X	X		X				
Kadir Has University		X	Architectural Design III	Ethical awareness and sensibility toward environmental factors, context and the user.	X			X	X				
Karadeniz Technical University	X		Architectural Project VII	Principles of energy saving, ecology and sustainability.	X			X		X			
			Architectural Project V	Criticize the architectural environment in social and physical context	X			X	X				
			Architectural Project IV	Accessibility	X			X			X		
			Environmental Behavior Information	To increase sensitivity of architectural students to man-environment, man-culture interrelationships, Perception, cognition and behavior patterns.	X		X		X				
			Sustainable Building Technology	Sustainable and design parameters of sustainable architecture		X	X			X			
			Ecological Design in Built Environments	Better understanding of ecosystems and sustainability		X	X			X			
			Barrier-Free Design	Draw attention to different users and their requirements in design, especially for disabled and elders, grasp the accessibility standards and its importance for the users		X	X				X		
Middle East Technical University	X		Introduction to Architectural Concepts	Develop an awareness of the architect's responsibility towards society and environment	X			X	X				
			Architectural Design II	Developing an awareness and sensitivity to natural and built environment, aesthetic values and taste	X			X	X				

Universities	St.	Fn.	Name of the Course	Course Description / Outcomes	Types of Course		Levels of Relevance		Content of the Course				
					Comp	El	CD	PI	EP in G.	Sust	UD	E	Cl
			Architectural Design II	Sustainable solutions	X			X		X			
			Architectural Design III	Carry out analysis of design problems in relation to environmental, social and urban aspects; sustainable design	X			X	X				
			Architectural Design V	Knowledge of the historical, theoretical, natural assets of design contexts and awareness with respect to environmental, social, economic sustainability	X			X	X				
			Architectural Design VI	Develop awareness with respect to environmental, social and economic sustainability	X			X		X			
			Principles of Universal Design	Making the built environment universally accessible for people of all ages, sizes and abilities.		X	X				X		
			Environmental Aesthetics	Environmental concerns and issues of aesthetics related to the environment and to social and urban experiences		X		X	X				
			Environment and Man: cause and Effect	Interrelationships and interactions of environment and people		X	X		X				
Eskisehir Osmangazi University	X		Design for All User in Architectural Design	Importance of the issue of user in architectural design. Design for all and Universal design approaches and their principles.		X	X				X		
			Sustainable Architecture	Sustainable architecture, increase knowledge, develop more concious designs and awareness of subjects concerning interdisciplinary approaches.		X	X			X			
Özyeğin University		X	Environmental Control	Climatization, lighting and acoustic control related with the design of physical environment regarding the relation between sustainability and human's visual, acoustic comfort	X			X		X			
			Site Analysis and Sustainable Landscape Design	Teaching sustainability for providing a holistic perspective for architectural design practice	X			X		X			
			Architectural Design Studio II	Understanding sustainability, and the interactions among natural systems, built environment and human.	X			X		X			
			Spatial Perception and Cognition	Concepts of perception and cognition		X	X		X				
			Sustainable Design Research	Sustainable solutions		X	X			X			
Suleyman Demirel University	X		Architecture, Identity and Sustainability	Relation between architecture and identity	X		X		X				
			Perception in Architecture	Concepts of cognitive science	X		X		X				
TED University		X	Architectural Design I	Develop an awareness to environmental, cultural and social issues, design elements and spatial-formal necessities	X			X	X				

Universities	St.	Fn.	Name of the Course	Course Description / Outcomes	Types of Course		Levels of Relevance		Content of the Course				
					Comp	El	CD	PI	EP in G.	Sust	UD	E	Cl
			Architectural Design IV	Interwoven relationship between human scale, human experience, space, structure, materiality and tectonics	X			X	X				
			Sustainabilty and The Built Environment	Issues and Challenges for Sustainable Development. Principles of Sustainable Design.		X	X			X			
			Environmental Aesthetics	Concepts of 'aesthetics' and perception. Values of ecology and environmental consciousness.		X	X		X				
TOBB University of Economics and Technology		X	Experience of Place and Space in Architecture	Place and space concepts, experiences of users.		X		X	X				
			Sustainable Architecture	Principles of sustainable design.		X	X			X			
Trakya University	X		Environmental Analysis in Architectural Design	Control of the physical environment, and energy efficient design criteria		X		X		X			
			Ergonomics	Ergonomic design principles		X	X					X	
			Relation of Sustainability and Architecture	Principles, strategies and methods of Sustainability		X	X			X			
			Design for All	Design accessible and useful spaces parallel with different users and needs by analyzing living environments		X	X				X		
			Architecture and Ecology	Ecologically sustainable design in architecture		X		X		X			
			Environmental Design Registration	The importance of participant thought to form holistic vision about creating and evolving environment.		X		X	X				
Yeditepe University		X	Architectural Design I	Understand the effect of human behaviors	X			X	X				
			Architectural Design IV, V	Sustainable design	X			X		X			
			Architectural Design VI	Sense of place concept	X			X	X				
			Architectural Psychology	The transactional relationship between people and the physical environment.		X	X		X				
Yıldız Technical University	X		Architectural Design 3	Sustainable design	X			X		X			
			Architectural Design 6	Considering Sustainable Design and Environmental Systems' Parameters	X			X		X			
			Architectural Environment and Psychology	Relationship between environment, human and behavior and effects of space on human perception.		X	X		X				
			Barrier-Free Architecture	Building awareness in the area of 'design for all'		X	X				X		
			Building-Health Relation	Relation between human and building, to produce and control the decisions in design and usage stage affecting the human health		X	X		X				

Universities	St.	Fn.	Name of the Course	Course Description / Outcomes	Types of Course		Levels of Relevance		Content of the Course				
					Comp	El	CD	PI	EP in G.	Sust	UD	E	Cl
			Alternative Energy Use in Architecture	Application of alternative energy sources in architecture which are renewable and with minor harms to the environment		X		X		X			
Total	12	8	100		37	63	43	57	53	29	14	2	2
Abbreviations	State: St. / Foundation: Fn. / Compulsory: Comp / Elective: El / Completely Dedicated: CD / Partial Involvement: PI / EP in General: EP in G. / Sustainability: Sust / Universal Design: UD / Ergonomics: E / Color: Cl												

Hypothesis One: The courses that teach about EP are generally elective courses.

This hypothesis arose from the point of view that concepts of EP are generally taught in elective courses instead of the required ones. Figure 4.4. below supports this hypothesis by showing that 63% of the analyzed courses are elective whereas only 37% is compulsory.

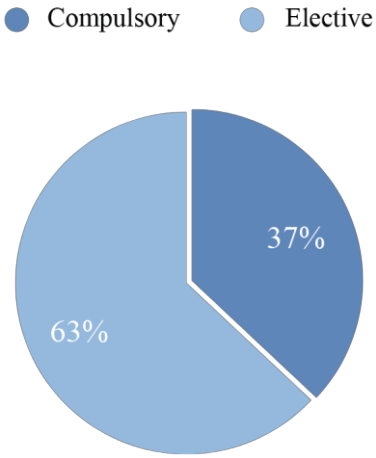


Figure 4.4. Distribution of courses related to EP based on the type of course.

The rarity of EP related compulsory courses is an important issue because as befits the name, elective courses are not attended by all students due to some personal or technical reasons such as the desire to attend a course from another area or inadequate quota. Thus, students are likely to lack basic understanding and concepts of EP as long as they are not instilled as a part of the required courses. At first sight, 37% may not appear exactly low, however, there is another dimension, which is the level of

relevance, that should be taken into consideration before drawing any conclusion. As has been stated before, the level of relevance dimension has two measures; completely dedicated and partial involvement. Figure 4.5. shows that only 14% of the compulsory courses focus on the concepts of EP completely. 14% percentage corresponds with 5 courses. When the content of the compulsory and completely dedicated courses are reviewed, it is noticed that one of them solely focus on sustainability whereas another one on Universal Design. This leaves only 3 courses out of 100, where other general concepts, discussed throughout the second chapter, can be transmitted to the students.

To conclude, only 3% of EP related courses are the required ones and aim to teach general concepts of the field. Table 4.2. indicates these 5 courses which are available in the curriculum of 4 universities.

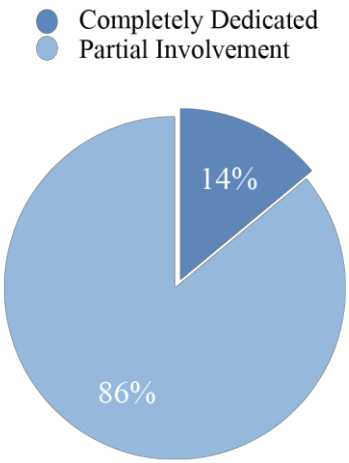


Figure 4.5. Distribution of compulsory courses based on their level of relevance.

It is unexpected that none of the other 16 universities including some outstanding ones such as METU or Yıldız Technical University provides compulsory courses related to EP. At this point, level of relevance dimension comes into play.

Table 4.2. *Distribution of compulsory and completely dedicated courses based on their content.*

Universities	Name of the Course	Content of the Course
Başkent University	Sustainable Design	Sustainability
İstanbul Technical University	Accessibility	Universal Design
Karadeniz Technical University	Environmental Behavior Information	EP in General
Suleyman Demirel University	Architecture, Identity and Sustainability	EP in General
	Perception in Architecture	EP in General
Total	5	

Further examination of the results reveals the possible cause of shortage as the partial involvement of the EP related subjects to the courses. Table 4.3. represents all compulsory courses which partially involves EP. The table demonstrates that both universities mentioned above integrated it as a part of their design studio scope with at least one subject from EP. In ITU and METU, 5 design studios out of 8 contain concepts of people-environment interaction, sustainability, identity, space-place, and design and its users. This ratio in two universities is considerably satisfactory compared to some other universities in the list. Apart from ITU and METU, 13 other universities out of 20 incorporated EP related concepts or outcomes in the syllabi of at least one design studio. However, as far as it is deduced from the syllabi, 5 of them took no measures of integration. Nevertheless, further research, such as an empirical study where the opinion of students, as well as instructors, are gathered, is required for a more comprehensive discussion on design studios. Because design studios constitute a crucial part of architecture education, are processes of continuous communication of the students and the instructor and have the responsibility to cover various subjects from different disciplines to educate qualified architects. Therefore, during this process of developing projects, the instructor may guide students towards EP in case of need.

Understandably, EP focused compulsory courses are scarce because the field of architecture encompasses a considerable amount of other subjects within its discourse. Touching upon all subjects even though briefly is essential to provide the

multidisciplinary consciousness and knowledge to the students. Thus, as the results indicate, in compulsory courses, EP is mostly included within the scope of the course partly rather than entirely.

Table 4.3. *Compulsory courses that include the concepts of EP in their syllabi.*

Universities	Name of the Course	Content of the Course
Balıkesir University	Architectural Design VII	EP in General
Başkent University	Design Studio VI	EP in General
İstanbul Bilgi University	Architectural Design I	EP in General
	Environment Conscious Building Design	Sustainability
Bilkent University	Architecture and Society	EP in General
	Architectural Design Studio VI	Sustainability
Cukurova University	Arch. Design 4	Universal Design
Dicle University	Architectural Design VII	Sustainability
Gazi University	Architectural Project VI & VII	EP in General
İstanbul Technical University	Project 2	EP in General
	Project 3	EP in General
	Project 5, 6, 7	EP in General
Kadir Has University	Architectural Design III	EP in General
Karadeniz Technical University	Architectural Project VII	Sustainability
	Architectural Project V	EP in General
	Architectural Project IV	Universal Design
Middle East Technical University	Introduction to Architectural Concepts	EP in General
	Architectural Design II	EP in General
	Architectural Design II	Sustainability
	Architectural Design III	EP in General
	Architectural Design V	EP in General
	Architectural Design VI	Sustainability
Özyeğin University	Environmental Control	Sustainability
	Site Analysis and Sustainable Landscape Design	Sustainability
	Architectural Design Studio II	Sustainability
TED University	Architectural Design I	EP in General
	Architectural Design IV	EP in General
Yeditepe University	Architectural Design I	EP in General
	Architectural Design IV, V	Sustainability
	Architectural Design VI	EP in General
Yıldız Technical University	Architectural Design 3	Sustainability
	Architectural Design 6	Sustainability
Total	32	

Hypothesis Two: The courses that teach about EP mostly concentrate on some mainstream concepts such as sustainability.

With the changing matters in the world, some concepts of EP are paid more attention than the others. For example, in the last two decades, sustainability became more popular each day because of the scarcity of energy sources and their damages to the natural environment. This type of popularization inevitably has reflections on the field of architecture. Thus, it is within the concerns of architects to show regard to principles of sustainable design as well as architecture education. After it started to become a mainstream paradigm in architecture, efforts to integrate it into the education increased correspondingly. On the other hand, universal design, which is also called barrier-free or inclusive design, is another mainstream paradigm. Even though it is not exactly situated as a sub-category of EP, it is acknowledged as one because it encourages taking the needs of all users into consideration and design for diverse people without any discriminations. In addition, ergonomics and color are also popular subjects that have been embraced mostly by interior architecture[12]. Apart from all these, there are various other concepts in EP which are essential for architecture students to learn about such as place identity and attachment, personal space, territoriality, and perception. All these concepts which do not occupy a place as popular paradigms are gathered under one measure called 'EP in general'.

[12] It is acknowledged by the author that EP also has an essential place in other design disciplines such as interior architecture and urban planning, hence it is not within the scope of this thesis. On this matter, Churchman explains that EP has developed into an interdisciplinary domain which can contain people that are interested in the interaction of humans and their substantial environment because "the goal of any field of planning is to enable people to achieve as high level of quality of life as possible". Churchman further indicates that some of the subjects that EP and urban planning "…deal with are common ones and are beginning to be even more so, particularly in the areas of sustainability, public participation and community planning." (Churchman, 2002). Additionally, it can be asserted that, interior architecture is a field that is based on the ground of concepts of EP to some extent, and there have been significant efforts to integrate EP within its theory, practice and education. Subjects such as color, ergonomics, behavioral effects of designs, perception of space and the needs of users in an interior environment are extremely considered in interior architecture. There is also a sub-branch of EP called interior design psychology which is basically the reflection and theorization of this close relationship of EP and interior architecture.

Figure 4.6. represents the distribution of analyzed courses based on these 5 measures of content. It is obvious that almost half of the courses contain solely mainstream concepts and sustainability is in the lead with a rate of 29%. Universal design is in second place with 14%, followed by ergonomics and color which have an equal rate of 2%. Only the remaining 53% of courses have the *possibility* to include other fundamental concepts of EP. *Possibility* is emphasized because not all of these 53% courses are able to cover notions necessary to understand the interaction of people and their environment. Moreover, even though a course encompasses all of them, some students will still have a deficiency if that course is elective; which leads us back to hypothesis 1.

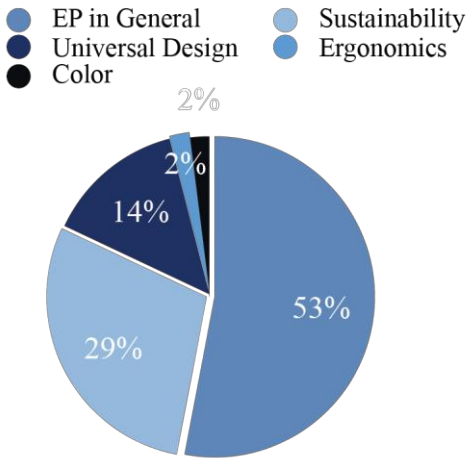


Figure 4.6. Distribution of EP related courses based on their content.

In this manner, Figure 4.7. expresses the percentages of the combinations derived from a type of course and level of relevance. It shows that only 3% percent of EP in general measure is compulsory and completely dedicated to the concepts of EP. When this is compared to the number of all compulsory courses provided in the curriculum of architecture education of the same 20 universities, the result happens to be excessively low (refer to Figure 4.8).

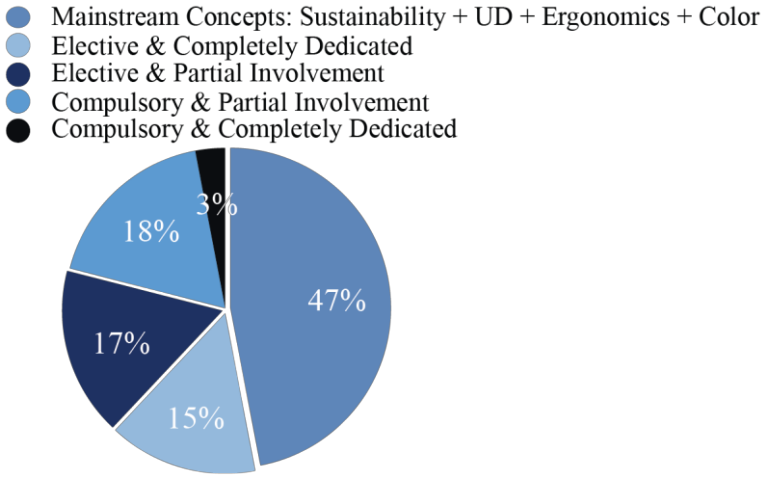


Figure 4.7. Distribution of 'EP in general' courses based on type of course x level of relevance.

Only 0.5% of the compulsory courses from all 20 universities' curriculum guarantees to provide knowledge of subjects such as place attachment, place identity, perception, personal space, territoriality, behavioral effects of the built environment. Throughout the second chapter of the thesis, the relevance, and importance of aforesaid concepts have been expressed multiple times. Thus, this percentage is far below than being sufficient for subjects that are within the fundamental ones to design satisfactory environments. However, it is not less than the percentage of the mainstream concepts as it has been alleged in hypothesis 2. Figure 4.9. proves that there are more compulsory courses that teach about EP in general (21%) than the ones that teach about sustainability (13%).

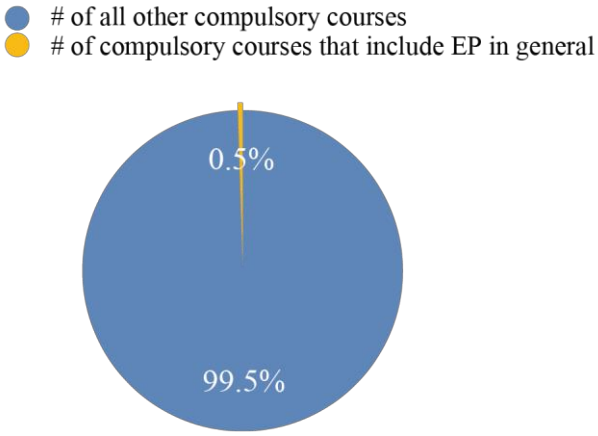


Figure 4.8. Ratio of compulsory courses that include EP in general to the all compulsory courses.

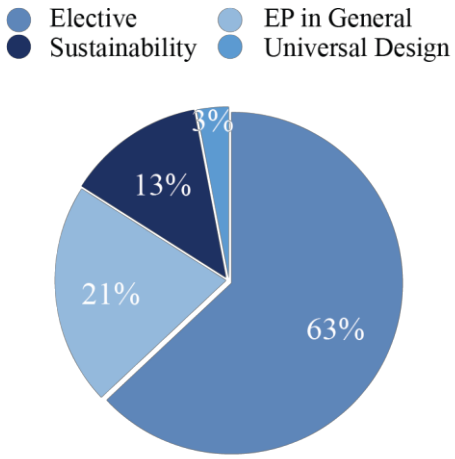


Figure 4.9. Distribution of compulsory courses based on the content dimension besides elective courses.

Hypothesis Three: There is a lack of integration of the concepts of EP to architecture education in Turkey.

Firstly, when the number of all EP related compulsory courses are compared to the all compulsory courses given in the curriculum of all 20 universities, the result, which is indicated as 6.2% in Figure 4.10., is not discouraging even though the conditions can be much better by means of EP inclusiveness. Secondly, Figure 4.11. shows that EP related ones generate 10.2% of the whole elective courses which is a ratio that cannot be underestimated. Lastly, all courses that are related to EP, which are 100 courses in total, occupy 8.2% of the sum of both compulsory and elective courses within the curriculum[13] (refer to Figure 4.12). These three percentages prove that when the dimensions of the research are neglected, an undeniable effort to provide sufficient integration is unfolded. Because in such a multidisciplinary and diverse field, reserving a place of 8.2% is encouraging.

[13] Total number of elective and compulsory courses for each university have been calculated based on the attainable data from the websites.

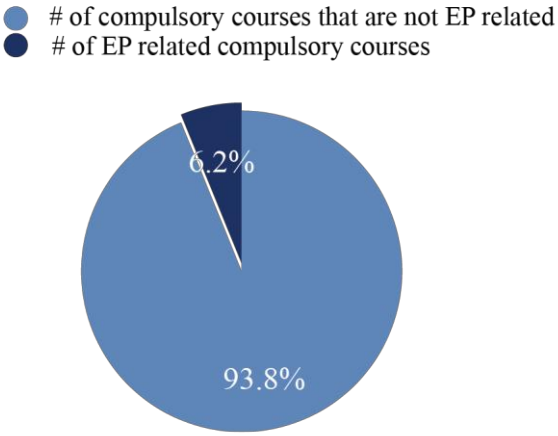


Figure 4.10. Distribution of EP related and not related compulsory courses.

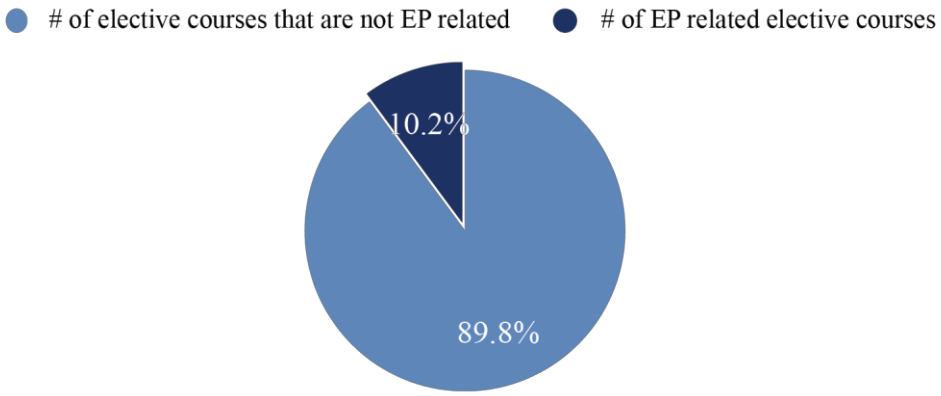


Figure 4.11. Distribution of EP related and not related elective courses.

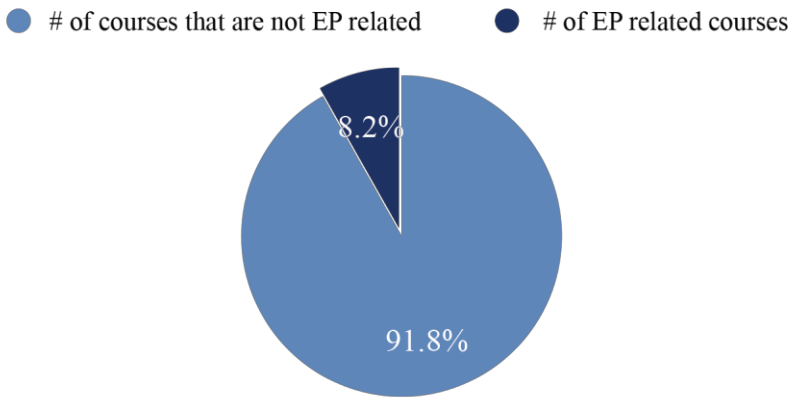


Figure 4.12. Ratio of all EP related courses within the sum of all elective and compulsory courses.

Furthermore, when the distribution of all courses is analyzed, it appears that more than half of the elective courses are utterly focused on EP, which is called as “elective &

completely dedicated" in the Table 4.4. The same category has the highest percentage amongst all EP related courses as well.

From the same table, it is also clearly visible that 3 measures from content of the course dimension are almost equal. However, Figure 15 shows that courses that focuses on EP in general amongst other elective & completely dedicated courses reserves a place of 37% (Figure 4.13.). This means the sum of courses that focus on sustainability and universal design is more than courses that focus on EP in general. On the other hand, most of the elective & partial involvement courses are from the category of EP in general, which reveals the hidden balance within elective courses.

Table 4.4. *Distribution of all EP related courses.*

Percentage of Courses	Content of the Course					Total
	EP in General	Sustainability	Universal Design	Ergonomics	Color	
Compulsory & Completely Dedicated	3	1	1	-	-	5
Compulsory & Partial Involvement	18	12	2	-	-	32
Elective & Completely Dedicated	14	11	12	1	-	38
Elective & Partial Involvement	17	5	-	1	2	25
Total	52	29	15	2	2	100

The results up to now do not confirm third hypothesis, but it should be clarified that, for simplification, some dimensions are neglected when the hypotheses are discussed separately. Rather than reviewing the results by separating through hypotheses, a holistic approach that discusses all of them at the same time may expose a different outcome. Thus, one last hypothesis arises from the aggregation of all three hypotheses: There are not enough compulsory courses which provide knowledge about the fundamental concepts of EP in architecture education in Turkey. Subjects such as place attachment, place identity, perception, personal space, territoriality, behavioral effects of the built environment, how the place is created all over again through the usage and perception of its users, behavioral effects of the built environment are meant

by the aforesaid fundamental concepts. Table 4.1 shows that only 2 of the compulsory courses include perception and only 3 of them include place identity in the course descriptions whereas 15 of them include sustainability.

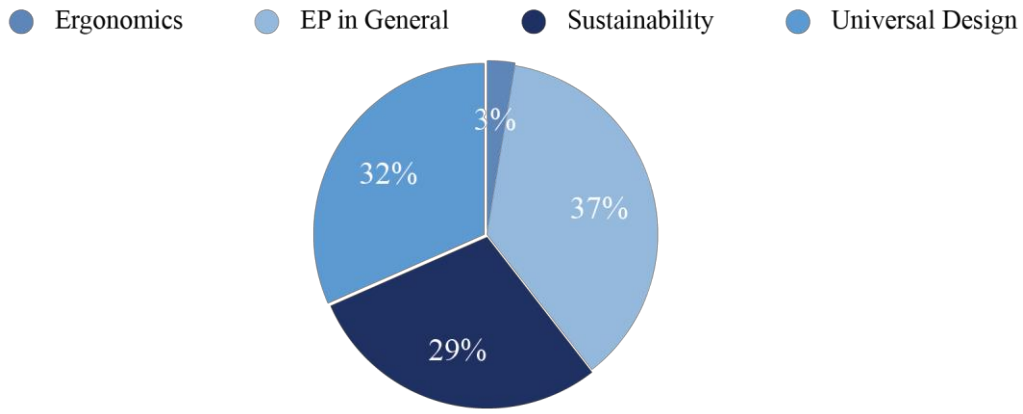


Figure 4.13. Distribution of all EP related collective & completely dedicated courses based on the content of the courses.

Table 4.1 shows that only 2 of the compulsory courses include perception and only 3 of them include place identity in the course descriptions whereas 15 of them include sustainability.

Up to now, the comparison of EP in General concepts and the other mainstream concepts has been made in terms of their integration ratio in the syllabi. However, the comparative analysis within the different concepts of EP in General measure is also an important part of this thesis. Thus, as it has been stated before, in the final dimension 'fundamental concepts,' the status of all concepts, which have been explained in the previous chapters as a part of discourse analysis, is analyzed. This analysis has been made through checking whether the course descriptions involve any information about these concepts (or their objects) or not. Table 4.5. shows that only 45 of the analyzed courses, which are 100 in total, involve these 'fundamental concepts.' The table also shows that some of the courses involve more than one concept whereas only one course involves all those eight measures.

Table 4.5. *Analysis of the syllabi in terms of their inclusiveness of 'fundamental concepts.'*

Universities	Name of the Course	Course Description / Outcomes	Fundamental Concepts							
			Int.	P&S	P	PS	PA	B	E	Cog.
Balıkesir University	Environmental Psychology	Explanation of psychological effects of the built environment on humans, and methods which assist to examine the needs and psychological reactions of the users.	X							
Başkent University	Design Studio VI	Teaching how to interpret architectural program with regard to socio-cultural values, environmental relations.	X							
	Perception of City and Criticism	Teaching the knowledge about architectural and urban perception and identity and related concepts.			X		X			
	Space Perception in Architecture	Concepts of space and perception, Cognitive and behavioral theories			X			X		X
	Architecture and Aesthetics	Learn basic information and theories related to aesthetics and architecture. Semiology of architecture, space and perception, sociology and public role of architecture			X					
İstanbul Bilgi University	Architectural Design I	Interpret and differentiate the effects of different spaces on human body and perception by means of various materials.			X					
	Responsive Environments	Have a basic understanding of the concepts from responsive systems and human interaction.	X							
Bilkent University	Space and Culture	Investigations on the relationship between culture and the built environment.	X							
	Current Issues in Architectural Design	Experience, Perception and Memory of Space, Sustainable Design, Architecture for People			X					
Cukurova University	City And Culture	Gains skills for explaining and evaluating relationships between human beings and architecture	X							
Dicle University	Architectural Environment	Environmental factors, human environment relation	X							
Gazi University	Architectural Project VI & VII	Interpretation of the architectural program in relation with social, cultural and environmental factors in an urban context	X							
	Arch. Design and Analysis of Environment	Analysis and interpretation of relations between architectural design and environment.	X							
	Concept of Place in Architecture	Conceptual framework of place and space		X						
İstanbul Technical University	Project 2	Relationships among human-nature-culture within the scope of environment, Sustainability, universal design, Participatory design	X							
	Project 3	Relationships among planning, design and user. Relationships of identity-meaning- concept-form.					X			
	Project 5, 6, 7	Design aspects including program, space, identity,		X			X			

Universities	Name of the Course	Course Description / Outcomes	Fundamental Concepts							
			Int.	P&S	P	PS	PA	B	E	Cog.
	Architecture and Psychology	User needs and psychological fundamentals in architectural design. Theories of environment-behaviour relations. Privacy, safety, personal space, territory mechanisms in the use of space.	X			X				
	Color in Design	Color and its theories, color in designed environment							X	
	Emotional Design	The relationship between emotion and design, the concepts of emotional responses, connections, associations and attachment							X	
	Environmental Psychology	Concepts of communication, theory and space; issues of environment-behavior: environmental perception and cognition, personal space, appropriation, privacy, place attachment, social interaction, cultural components that shape behavior in the interior space; new concepts and sustainability within the field.	X	X	X	X	X	X	X	X
	Social Psychology	Definition of social behavior and social psychology. Individual processes.						X		
	Social Transformation, Gender and Space	Human perception and environmental experience, place and identity			X		X			
	Theories of Architectural Design	Theories taken from those fields: social and cultural, behavioral theories, theory of privacy, territoriality, personal space-social space theories				X		X		
	Theory of Color	Colour perception and cognition, spatial perception, space-colour relationship, space identity			X		X		X	X
	Urban Identity and Image	Concept of perception, cognition, image and identity, place identity and urban identity			X		X			X
İzmir Institute of Technology	Spatial Perception and Representation	Relationship of architectural space, perception, and representation, spatial perception developed in the field of philosophy and psychology		X	X					
	Environmental Psychology	Primary concepts, the psychological and behavioral effects of physical space.						X		
Karadeniz Technical University	Environmental Behavior Information	To increase sensitivity of architectural students to man-environment, man-culture interrelationships, Perception, cognition and behavior patterns.	X		X			X		X
Middle East Technical University	Introduction to Architectural Concepts	Develop an awareness of the architect's responsibility towards society and environment	X							

Universities	Name of the Course	Course Description / Outcomes	Fundamental Concepts							
			Int.	P&S	P	PS	PA	B	E	Cog.
	Architectural Design II	Developing an awareness and sensitivity to natural and built environment, aesthetic values and taste	X							
	Architectural Design III	Carry out analysis of design problems in relation to environmental, social and urban aspects; sustainable design	X							
	Environment and Man: cause and Effect	Interrelationships and interactions of environment and people	X							
Özyeğin University	Spatial Perception and Cognition	Concepts of perception and cognition			X					X
Suleyman Demirel University	Architecture, Identity and Sustainability	Relation between architecture and identity					X			
	Perception in Architecture	Concepts of cognitive science			X					X
TED University	Architectural Design IV	Interwoven relationship between human scale, human experience, space, structure, materiality and tectonics	X							
	Environmental Aesthetics	Concepts of 'aesthetics' and perception. Values of ecology and environmental consciousness.			X					
TOBB University of Economics and Technology	Experience of Place and Space in Architecture	Place and space concepts, experiences of users.		X						
Trakya University	Environmental Design Registration	The importance of participant thought to form holistic vision about creating and evolving environment.	X							
Yeditepe University	Architectural Design I	Understand the effect of human behaviors						X		
	Architectural Design VI	Sense of place concept		X						
	Architectural Psychology	The transactional relationship between people and the physical environment.	X							
Yıldız Technical University	Architectural Environment and Psychology	Relationship between environment, human and behavior and effects of space on human perception.	X		X					
	Building-Health Relation	Relation between human and building, to produce and control the decisions in design and usage stage affecting the human health	X							
Total	45		20	6	15	3	8	7	3	6
Abbreviations	Human & Environment Interaction: Int. / Place & Space : P&S / Perception: P / Personal Space: PS / Place Attachment & Identity: PA / Behavioural effects: B / Emotional effects: E / Cognition: Cog.									

Figure 4.14. below is produced based on the data from Table 4.5. It is a more visual representation of the comparative analysis of the 'fundamental concepts' which this thesis has been focused on in the previous chapters. The outer biggest circle indicates all of the EP related analyzed courses, whereas the one separate circle indicates the course which involves all of these eight concepts. That separate circle represents the intersection of the other circles that make a cluster.

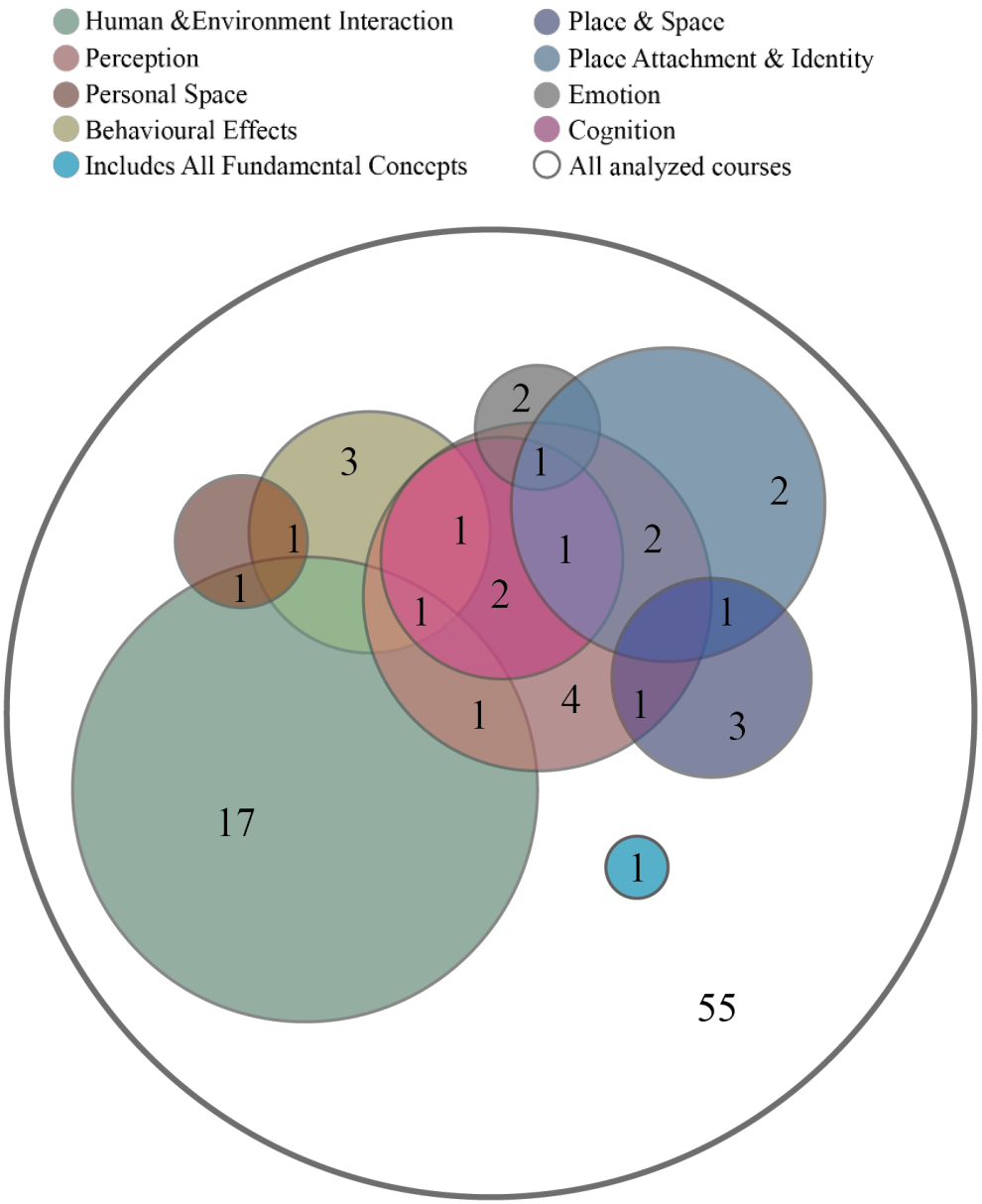


Figure 4.14. Distribution of all courses based on the inclusiveness of 'fundamental concepts'.

The sizes of the circles are decided based on the data from the table. For example, since the measure 'human-environment interaction' is involved in the highest number of courses, it is represented with the biggest circle in the figure above. Likewise, the concepts that are included in fewer courses are represented with smaller circles. Moreover, in the intersection of those circles, the number of courses that involve those concepts are written. For example, the course called "Space Perception in Architecture" involves concepts of perception, behavioral effects, and cognition. This course is the only one that involves these three concepts at the same time. Thus, in the figure, "1" is written at the intersection of these three concepts' circles. Similarly, all courses which involve cognition in their course description involves perception as well. Hence, the circle that represents cognition is positioned inside the circle that represents perception.

Figure 4.14 shows that there is not a balanced distribution of the concept in the analyzed courses. Only one course includes all concepts out of 100 courses. Some concepts, which are explained as important figures of both EP and architecture, such as personal space is only involved in three courses which are way below necessary. The figure also demonstrate that perception and basics of human-environment interaction are more involved in the course descriptions compared to the other concepts within this dimension.

After all the results of this case study are considered, it is not asserted that EP is utterly neglected in architecture education in Turkey because the results show that it is integrated more than it has been expected at the beginning of this thesis. As has been stated previously, further investigation is necessary because there are many other factors which can influence the application of these syllabi. Some of these factors can be the variations in the approaches of instructors, subjects of the studio project or difference in the area of interests of the students. Nonetheless, there is also an obvious disequilibrium between the integrated concepts. The author acknowledges that the paradigms of architecture shift over time, but this should not mean the complete abandonment of the older paradigms. During the 1980s and 1990s the basic concepts

of EP started to be integrated into the architecture, however with the ascendance of sustainability throughout the world, architectural paradigms shifted towards the same direction with the rest of the fields. Therefore, now the field of architecture seems to value sustainability above all other EP related concepts. Besides, the forth dimensions exhibits that there is also a disequilibrium in the inclusiveness of the concepts that constitute the core of this thesis. Practice of architecture is not in the scope of this research, but it can be asserted that EP is neglected to some extent in practice as well and additional research to analyze the status of EP in practice is important for a broader examination. The reasons behind the disequilibrium are not the mainstream concepts or any institutions, but rather it is the general approach to the architecture education in Turkey. To prevent disequilibrium, efforts to integrate the fundamental concepts of EP should increase without making any compromises of other subjects. Integration can be enhanced through rethinking the role of EP in architecture and paying more attention to the contents of the courses in the syllabi and their applications.

CHAPTER 5

CONCLUSION

This thesis started with some assumptions such as; EP and its relationship with architecture are both discursive formations, EP is not taken into consideration adequately in the architecture field and there is an absence of integration of EP in architecture education. Throughout the thesis these assumptions are examined in depth through discourse analysis and a case study on Turkish architecture education. From this process and entire content, it is possible to reach three conclusions which are explained below in detail.

5.1. The Discursive Existence of Environmental Psychology and a Critical Awareness on the Importance of it in Architecture

Starting with the allegation that EP is a discourse, its discursive formation and development as a field, and concepts have been divulged during the former chapters of the thesis. The discourse of EP and its concepts are immensely broad in scope because all sub-branches and concepts within EP can be approached as a discourse on their own. Thus, this thesis only exhibits a limited discourse analysis can only be accepted as the beginning of comprehending the discursive existence of this field. There are many other concepts, apart from the ones scrutinized in this thesis, in EP that can be examined in relation to architecture and suggested to be embraced by architectural theory as well as practice, which leads to the conclusion that EP is an essential for architecture. It is important simply because it has a great potential to contribute to the interaction of the environment and people.

> *"Between the domains of environmental influences on humans and human influences on the environment, the challenge for further integration lies in identifying and encouraging human-environment interactions that contribute to environmental research as well as to human well-being" (Berg, Steg, 2013, p.310).*

Effects of the environment on human health and well-being is also a subject within EP and through embracing that knowledge, it is possible to increase the quality of the users of a place. This power of the architecture on the quality of the life of people and their well-being gives a tremendous responsibility to architecture and the architects. Because "(a)t its grandest, architecture (and architects) can have enduring effects on society. At its most mundane, architecture can have an influence on the quality of a day" (Pressman, 2012, p.10). Hence, through the exposure of discursive relationship of EP and architecture, this thesis makes a contribution to increase the awareness on the importance of EP in architecture and encourages embracing the concepts of EP to increase the quality that designs can provide.

On the other hand, it is not enough for only architects to adopt EP. Since EP constantly emphasizes the importance of people, users and clients should also welcome the knowledge of this field. Users should be aware of their role within this interaction with the environment and take it into account. EP is also in favor of increasing the participation of the clients and users to design process. Clients already try to get involved to this process, however, their participation is focused more on aesthetics and economical aspects. If people are provided this knowledge of EP, their perspective can develop to regard the psychological effects of the places they want to be designed and they can at least take that into consideration during their participation. This research can be expanded in this sense to examine the status of EP in the knowledge of the users and their participation.

For user participation to occur, it is not a requisite for people to be in the design process directly. It refers to a more indirect participation through the architects.

> *Designers have a responsibility to respond diverse user's needs, problems and expectations. In order to achieve this goal, designers need to empathize with users, since empathic understanding serves designers in immersing in the lives, experiences and ways of living of the users. So, designers need to develop their*

empathic ability and should reflect it on their products or projects. (Kocaoğlu, Demirkan, 2019, p. 15).

If the architects empathize with the people more, they can achieve a broader comprehension of the users' needs and they can take them into consideration during their creative process.

5.2. The Absence of Environmental Psychology in Architecture Education

This thesis involves a variety of sources from the 1970s to the present, however, the ones that are acknowledged as the backbone of this thesis are mostly from four decades ago. Because back then, psychology was one of the popular paradigms of architecture, and the role and significance of it in architecture education was a highly discussed topic. The reason is that EP was a newly-emerging field and there were some efforts to incorporate EP into architecture due to the realization of the interaction potentials of two fields. Although this thesis is founded upon the statements that are mostly from four decades ago, the results of the case study show that those statements are still valid to some extent. There is an undeniable development of the integration of EP into education, nevertheless, it is certainly inadequate.

It should not be allowed to be misguided by the results of the case study where the educational component of the architecture is reconsidered and the status of the discursive concepts, which are discussed in the first chapters of the thesis, are examined in the syllabi of the courses. Although the results do not seem discouraging, there is still a lot more way to go until EP is incorporated within the discourse of architectural theory and the reflections of it are visible in the practice of architecture.

5.3. Education as a Domain of Possible Relations Between Environmental Psychology and Architecture

Architects are exceedingly capable of developing a successful understanding of human needs and psychology through the interpretation of personal experiences, observations, and pieces of information. However, in order to initiate this curiosity in

the architect's mind, education is far more essential. It is easier for students to adopt the required psychological approach during architectural education and develop it in practice throughout the years. The results of the case study show that infusing psychological concerns is already a part of architectural education especially in project studios, where it is mostly provided through seldom conservations between the professors and the students, and elective courses. The existence of EP related discussions in design studios is understandable because "(a) casual review of any university architecture curriculum will reveal that the studio is the central activity in every architecture student's life" (Oh et al., 2013, p.302). Studios are a prerequisite for architecture education because they are "…where the knowledge about buildings is applied, and it is where the act of designing—generating, evaluating, and developing alternatives—is learned and practiced" (Gross, Do, 1997). As the results of the case study prove, there are undeniable efforts to integrate the fundamental concepts of EP which are gathered under the category of "EP in general". Since the case study is only based on the written syllabi provided by the departments of architecture, and it is not possible to comprehend the depths of the discussions take place during the studios from the content of the courses, there is no way for this study to deduce that EP is successfully integrated to design studios. As it has also been suggested previously, further research to examine the discussions in design studios and their reflections on the perspective of students are necessary. Thus, without neglecting the established adaptations, it is concluded that working on new methods of integration and being open-minded for new adaptations to design studios is still a crucial issue. Because as studios are the "the backbone of the education of future architects" and the values of the profession and society are conserved and transmitted through them, it is important for EP to find a solid place with its discursive concepts and relations in the design studios (Sambare, Saggu, 2016).

On the other hand, it is not sufficient for these far-reaching fundamental concepts of EP to be only briefly discussed in the studios seldom and provided electively. Integrating the discursive concepts into education through independent and

interrelated courses is also essential. Byron Mikellides is an influential professor of architecture on this matter. He is highly interested in the role of psychology in architecture and how to "include it as part of the education". According to Mikellides, architectural education of three decades ago did not fully prepare students to transcend the role of an engineer. Hence, he suggested that through the integration of psychology to architectural education, students can have a psychological perspective, which guides them to recognize new stances that they have not before and comprehend the relationship of human psychology and design extensively. Without this point to view, it is likely to misinterpret the user knowledge (1984). After more than three decades, it is possible to assert that Mikellides' point of view is still valid to some extent based on the results of the case study.

The case study exhibits that the integration of present-day architecture education in Turkey certainly does not neglect the concepts of EP completely, nonetheless, there is not a balanced distribution of concepts neither. According to the results, education is generally focused on concepts of sustainability and secondly on principles of universal design. However, the concepts which have been analyzed in the third chapter of the thesis such as place attachment, place identity, behavioral effects, perception, and personal space, are revealed to be crucially related to architecture and should also be acknowledged as important keystones within architecture education. In this way, all those concepts can be assimilated in the practice as well. The effect of education on the built environment and practice of architecture gives great responsibility to education and makes it a domain to incorporate the discursive relationship of EP and architecture.

> *"As a prerequisite to environmental education, an enhanced sensitivity is required to the quality of person-environment relations in daily life. ... sensitivity is not taught directly but is infectiously passed from one another. ...sensitivity can be aroused by the influence of the others. We should set up situations in education where this influence is enhanced. (Takahashi, 2000, p.236)*

Suggesting new methods of integration requires long years of studies and analysis of education. Teaching all the complex aspects of human psychology and needs can be very confusing for the students, they may lose their way during their education and they can be overloaded with knowledge. Teaching some of the basic principles and terms in the first years of education can be a smooth start. After they examine the basic theories and discuss the reflections of them to design, studying on a studio project by taking into consideration this knowledge will help them to design in the light of user needs and psychology. Mikellides demonstrates a suggestion for this integration by adding courses such as Social Environment, Environmental Psychology, Psychology of Perception in the first year, offering a major studio project where a problem is defined and comprehended by students and they write a report describing the psychological effects before design process in the second year. Lastly, in the third year, he proposes students to practice the information they gathered throughout the previous years during a whole process of design (1984). Regarding psychological aspects redundantly can cause distress in the capability of problem-solving. Rather than forcing students to face psychological problems constantly in design, including them right along with the other cases of architecture is more advantageous. For instance, researching and writing a report on the Gestalt principle of perception will guide students to understand totality which is one of the main principles of space perception. Also, researching on how places are perceived differently by individuals, the effects of these differences on the behavior of the users, and the broad influence of place on the being of people through place attachment and place identity can help students to comprehend the effects of their designs more thoroughly. Moreover, interviewing with potential users from their lives, creating mood checklists and questionnaires can be highly beneficial in design studios (Mikellides, 1984). This method also provides comprehension of the natural individuality in space perception, because it can display the various approaches of different users and help students to understand that designing only for a particular group or an average user, which does not exist, would not lead to satisfaction of various users. At last, working on projects for various user profiles such as mental hospitals, educational buildings or houses for

the elderly may also help students to consider the psychological effects of the space more on different groups of people. The last suggestion is involved in the subject of universal design or accessibility. According to the results of the case study, universal design is getting increasingly popular because almost every university integrated it as at least an elective course. However, it is still an important subject of EP to emphasize due to its inclusive policy without discriminating age, gender, disability and so on. It is beneficial to emphasize that the design process should not revolve around the needs of an average person. The aims of design should include taking into account the needs of all potential users of a place. On this matter, the knowledge of open building, which "is an innovative way of producing user-oriented environments," can be provided in architecture education. The approach of the open building is explained as follows:

> *"It aims to ensure that design decisions will enable buildings and urban fabric to remain valuable well into the future, because they are planned for change as well as stability. ..., the approach is based on the premise that buildings are not static artefacts, but they are in constant transformation and change. Thus, open building differs from the conventional way of building in which a single program is adapted; since it recognizes that a single program would not be enough to satisfy a wide range of needs and preferences as well as the future demands of the occupants. ... The open building approach also acknowledges that building design is a collaborative process, which involves many participants with diverse backgrounds. ... Involvement of users in design decision-making processes is another principle of open building" (Pektaş, Özgüç, 2011).*

This concept can contribute to the integration of EP through its emphasis on the user-oriented design approach and involvement of the potential users with different requirements and expectations. Thus, it is an essential approach to mention within architecture education.

Furthermore, sustainability is mentioned as another mainstream concept in architecture, and the unbalanced surplus of courses, that involves the subjects related to it, in architecture education is discussed in the case study. Due to its popularity in both architecture theory and practice, it is possible to encounter more courses related to sustainability subjects rather than other subjects that remained in the background. However, this does not mean that sustainability is integrated into architecture education more than it is required, this can only be the indicator of it being embraced in architecture more than the other concepts. For all the concepts that are indicated as relatively more integrated, such as sustainability and universal design, further researches to examine the quantity and quality of integration are suggested.

In addition to these proposals, including more computer-based courses can be beneficial. Even though it is not esteemed to be related to EP, usage of technology can greatly contribute to the integration of it in architecture education. With the rapid improvements in computer technology, simulation, which is construed as a useful approach because it gives the opportunity to model the design in a realistic way, and anticipation of the designs are enabled through virtual settings (Taşlı, Özgüç, 2001, pp.139-140). Especially the application of virtual prototypes to both education and professional life is another way of this integration. A virtual prototype is explained as "… a computer simulation of a physical product that can be presented, analyzed, and tested from concerned product lifecycle aspects such as design/engineering, manufacturing, service, and recycling as if on a real physical model" (Wang, 2002). Technology has been developed to a point where architects can examine their designs before the construction through virtual prototypes. Virtual prototypes are described as "dynamic, interactive, often immersive three-dimensional CAD models utilizing VR technology and developed to analyze product designs." (Taşlı, Özgüç, 2001, p.141). On the importance of VR, it has been stated that "(h)umans that experience freewill exploration of virtual environments can demonstrate a wide range of behaviors and responses similar to their naturalistic exploration of real-world" (Morie, Iyer et al, 2005). Usage of VR in architecture is fresh off the boat but the rate increases as the

time pass by. It is merely used in practice because students are educated without adequate knowledge of it and it may be economically burdensome. The benefits of it should be discussed in the education and students should be encouraged to use this as a tool for pre-examination of their designs. There can be two ways of this pre-examination. Firstly, virtual humans which "…are computer-generated, graphically displayed entities that represent real humans" and "…are used to test the fit, reach, and motions of people in vehicles and environments" can be used (Taşlı, Özgüç, 2001, p.140). Secondly, through VR, the potential users of a designed place can experience it before its construction and give feedback on the effects of the place on their behavior and psychology. "By studying the results of potential customers' interaction with a virtual prototype designer can understand the advantages and disadvantages of a proposed design." (Taşlı, Özgüç, 2001, p.141). The implication of these technologies to the design process through education will lead to more conscious architects on this matter and the usage of such beneficial systems will increase. After the theoretical background of EP related concepts are transferred to the students, giving the knowledge of how to measure all those effects, explained within its discursive situation, and integrate it into their design process will inevitably help EP to take a new dimension in architecture.

The integration of EP to architecture as a discipline is exceptionally important to design a satisfying environment. As Terrence Lee states, "...a good architect these days is one with a profound understanding of the human behavior and emotions that are to be expressed and encouraged within the environment he constructs" (1969). To design a satisfactory environment, one should have an understanding of EP and interpret user knowledge to design. To achieve extensive comprehension and interpretation of EP, it should be integrated as a part of architecture education through basic courses, interactions with potential users during studio projects and encouraging using the advantages of computer technology in the design process.

Throughout this thesis, the effects of the built environment on humans, the importance of understanding their interaction, discourse of EP not only with its concepts but also

its relationship with architecture, the role of education in comprehending this discursive relationship, the status of EP within architecture education, especially in Turkey , and lastly possible methods to integrate EP to architecture education have been discussed from a critical point of view. To conclude, there is no one way to study or practice architecture, and we are constantly re-inventing it in order to meet the changing needs of the building industry and our global approach to architecture and urbanism. This study contributes to revealing the importance of EP in architecture through explaining the relevance of the discursive concepts of EP, the necessity for both architectural theory and practice to incorporate these concepts in its discourse, and the essentiality of considering EP while the field of architecture is under constant progress and reconstruction.

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