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Architecture, Planning and Design are strongly affected by other disciplines such as fine arts, philosophy, engineering, geography, economics, politics, sociology, history, psychology, geology, information technology, ecology, law, security and management. However, there are not enough academic journals which specifically focus on the connections of architecture, planning and design with other fields of science. ICONARP aims to fill that gap. Our scope is to provide a suitable space for theoretical, methodological and empirical papers, which use global and local perspectives together, in architectural and urban studies.

ICONARP aims to be a reputable platform for the studies of Architecture, Planning and Design. ICONARP's objectives are:

- To question global and local interactions in the field of Architecture, Planning and Design,
- To discover the relationship between Architecture, Planning and Design,
- To increase the contribution of Architecture, Planning and Design to social and behavioral sciences,
- To discover the relationship of Architecture, Planning and Design with other fields of science that are affected and affect,

- To develop theoretical and methodological foundations of Architecture, Planning and Design,
- To discuss the role of architects, planners and designers today and in the future,
- To compare the differences between architecture, planning and design research, practices and education in different countries,
- To bring a scientific view of current issues and discussions in field of Architecture, Planning and Design,
- To discover innovative methods and techniques in the field of Architecture, Planning and Design.

ABSTRACTING AND INDEXING

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Research Article

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First Year Students' View of Architecture

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Abstract

Purpose

The present study investigates architecture students' pre-established schemata or prejudice structures towards architecture before their formal education starts. This would be particularly deemed important since architectural pedagogy might be tweaked or even reformulated accordingly.

Design/Methodology/Approach

The research employs "content analysis" which is a method that uses set of tools and procedures to read texts for generating knowledge-based inferences. On such a ground, the research is based on single-sentence answers given to a simple question asked to students: "what architecture is all about." and the recordings of a follow-up open-ended discussion with the students on the initial findings. The data is evaluated both quantitatively and qualitatively.

Findings

Findings indicate a series of pretexts in students' responses, particularly a residing (historical) determinism, a belief in zeitgeist, a conservatism, a pessimistic, passive understanding of architecture. On the other hand, they did not relate architecture to newness, change, difference, innovation, and they did not conceive architecture as an agent of these aspects. Research shows that students' horizon of expectations and their preconceptions about architecture seem to be quite a mismatch with any trajectory of architectural education tradition that might take these notions as essential to itself and its intellectual core.

Research Limitations/Implications

The study is aimed to be part of baseline data for carrying out future investigations, a step toward more systematic analysis of changing state of today's architectural education and a larger/global effort to map this phenomenon with its possible effects in architectural education.

Originality/Value

The study makes an original contribution to knowledge by being one of the first studies to focus on the question of "what architecture is all about" on behalf of the first-year architecture students in Turkey.

Keywords: *Architectural education, architectural pedagogy, architecture, schemata, prejudice structures*

INTRODUCTION

...architects who have aimed at acquiring manual skill without scholarship have never been able to reach a position of authority to correspond to their pains, while those who relied only upon theories and scholarship were obviously hunting the shadow, not the substance. But those who have a thorough knowledge of both, like men armed at all points, have sooner attained their object and carried authority with them.

—*Marcus Vitruvius Pollio*

Trying to give an answer to the ultimate question “what is architecture,” and trying to conceptualize “what architecture was all about,” is a long-standing endeavor, attempted by many throughout the history. We do not know for sure if the architects of Göbeklitepe, one of the oldest architectural piece known to us, circa 10th millennium BC, were aware of what they were doing and why, but, we might suspect that they did so. Thinking as such would not be far reaching, since for example the first text about architecture that is accessible to us today, namely Vitruvius’ *De Architectura*, to the degree considered as some type of a “guidebook,” to that degree it is a means of theorizing “architecture,” and an accompanying attempt to answer the ultimate question, “what architecture is all about” (Vitruvius 1914)¹. The earliest attempt also illustrated that not only architecture might mean many things all at once, but also no matter how carefully formulated our conception about it, and no matter how inclusive and comprehensive it was, it would sooner or later, and easily be refuted by others, at least by emphasizing other facets of architecture. For example in his “Architecture, Essay on Art,” Etienne-Louis Boullée’s answer to Vitruvius’ conception of architecture as “art of building,” architecture conceived as an intellectual product, a product of the mind, a creative endeavor, is a well-known illustration of such attempts (Boullée 1976)². A more recent one is Bernard Tschumi’s answer to Nikolaus Pevsner’s famous quote in his book *An Outline of European Architecture*, stating that “A bicycle shed is a building; Lincoln Cathedral is a piece of architecture” (Pevsner 1957). Tschumi contends in his *Architecture Concepts: Red is Not a Color* that actually it is just the reverse, “A bicycle shed with a concept is architecture; a cathedral without one is just a building” (Tschumi 2012).

If the title is taken as it was, almost a tautology, setting aside Hans Hollein’s (1968) essay “Everything is Architecture,” history of architecture is full of statements of architects, philosophers, scholars, even politicians, trying to describe what architecture was, most of which are either going against what precede them or mostly incompatible with each other³.

One might think perhaps written language came short to describe architecture, or some would say a formula is not only impossible but also needless. Apparently, all is because of the nature of architecture, that is based on architectural problems mostly ill-defined in nature⁴, the process itself is on the one hand indeterminate, on the other, epistemologically

¹ An original manuscript of *De Architectura* was written in Roman between 30 and 15 BC to be presented the ruler of the Roman world, Augustus Caesar.

² Boullée’s (1728-1799) *Essai sur l’art, Architecture* was originally written in French. It is a compilation of part of Boullée papers and notes.

³ For a detailed understanding of the architectural quotes see, Laura Duschkes (2012), *The Architect Says: Quotes, Quips, and Words of Wisdom*, Princeton Architectural Press.; and also see related more popular web sites available at:

<https://www.goodreads.com/quotes/tag/architecture>,

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(accessed 18 October 2018).

⁴ About ill-defined problems see (Reitman 1964); (Newell 1969); (Simon 1973); (People 1982); (Voss & Post 1988); (Johnson 1988).

fed from vast sources, and while the knowledge is mostly tacit, the equation (if there is such thing) from which architectural solutions come out is disastrously complicated. Architecture is art, architecture is science, architecture is about technique, about engineering; architecture is about context, society, human beings, it pleases, gives message, talks, you can use it, see it, live in/with it, it is intellectual, cultural, physical, political, financial, it express values, symbolize things, it houses, it shelters, it protects, and often it is about many of these at once (Figure 1). So any attempt to define such a phenomena, distill it down to its essence is not only futile, but if done so, the outcome might be easily refuted. However, any description attempt might bear the element of truth; actually, some might give a rigorous, plausible answer to the question “what architecture was,” and develop an understanding of architecture. However, more important, these are the means of one’s view of architecture solidified into a verbal, written form.

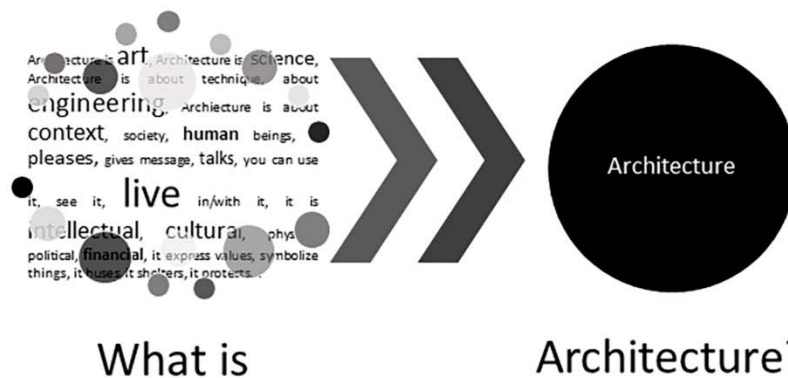


Figure 1. Multifarious facets of architecture (by the authors)

The epistemological roots of this position refer to multiple sources from contemporary philosophy. From a wider perspective, to use a term from philosophical hermeneutics of Hans Georg Gadamer, these are the means of giving a portrait of one’s “prejudices” and “prejudice structures” about architecture (Gadamer 1976), or to use a term from reception theory of Hans Robert Jauss , these are the means of representing one’s “horizon of expectations” concerning architecture (Jauss 1970). Prejudices or expectations are not only required for one to see the world, but also understand, interpret, and evaluate what surrounds us, whether intellectual or physical, including architecture as a profession, as a concept, as a product or whatever we attribute architecture to be. Accompanying learning and cognitive theories such as Schemata Theory⁵ and Jan Piaget’s cognitive theories (Piaget 1952; Piaget & Inhelder 1969) in parallel suggest that such structures are the pre-requisites and precursors of all types of learning, and learning itself is nothing but establishing such a schemata or transforming the existing ones into something desired. As such, learning could be interpreted as establishing prejudice structures or schemata in one’s minds tailored to fit the needs and specificities of a certain profession’s requirement (Figure 2). Moreover, at any point, (before, during, and at the end of a formal

⁵ About schemata theory and some of its applications to the field of architecture and design see (Piaget 1952); (Piaget & Inhelder 1969); (Rumerhart 1980); (Bartlett 1995); (DiMaggio 1997); (Webster 2008); (Devlin 1990); (Jacob 1993); (Minsky 1997); (Craig 2001); (Akin 2001); (Akin and Akin, 1996); (Lawson 2004); (Kohls and Scheiter 2008); (Oxman 1994); (Oxman 2005).

education,) one's view of the world would project one's schemata, one's prejudices, or one's expectations. Therefore, any attempt trying to theorize and conceptualize architecture means externalization of one's view of architecture. So, attempting to formulate "what architecture was all about," actually not amounts to saying "architecture is..." but rather saying, "this is how I view and conceive architecture." Since such externalization reflect their formulator's worldview, as well as his or her schemata, in an externalized, recorded, and thus solidified state, to use Karl Popper's terms, these might be subject to objective investigation (Popper 1945; Popper 1974).

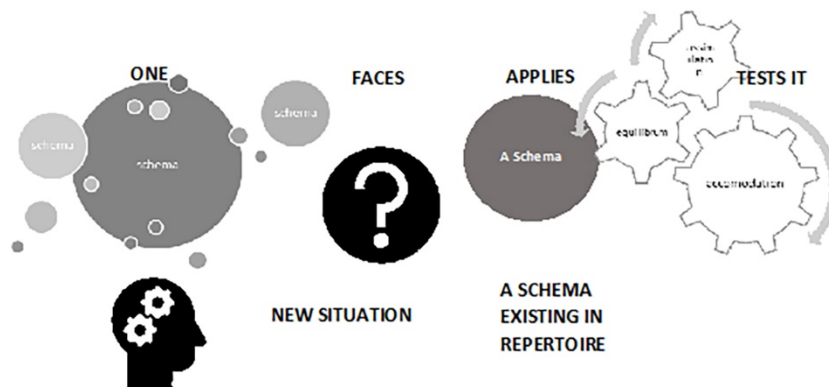


Figure 2. Piaget's theory of schemata. (by the authors)

Departing from the abovementioned framework, the present study investigates architecture students' pre-established schemata or prejudice structures towards architecture before their formal education starts. Apparently, it would vary considerably between individuals, but we could easily claim that each generation would carry the marks of their own era in their mindsets and investigating these patterns will indicate a holistic view of the phenomena, the "material" that we are confronted with as educators. This would be particularly important since architectural pedagogy might be tweaked or even reformulated accordingly.

METHODOLOGY

The present research is based on first-year architecture students' answers to the question, "what architecture is about." In total, 105 students were involved in the study. Each student was given an unlimited time to answer the question in isolation from any media. Given the question, the students were asked to formulate and write down their response in only one sentence. This was for forcing them to distill their understanding of architecture to its precise essence, and formulate their answers accordingly. Namely, to ensure that they formulate a concise view of their notion and understanding of architecture to include what was essential while excluding the non-essential aspects, for them. Methodologically, if there were more than one sentences, only the first one was considered.

⁶ Researchers were professors of architecture having about 23 years of teaching experience in the academy, and having 23 years of research experience, particularly focusing on architectural education.

⁷ Content analysis is a method, a systematic reading, focused on meanings, concepts, intentions, and references. It is a method that uses set of tools and procedures to read texts for generating knowledge-based inferences. About "content analysis" see (Weber 1990) (Krippendorff 2004).

In the first stage, gathered data was evaluated both quantitatively and qualitatively by two researchers, independently.⁶ Here, reliability and validity of data mainly comes from first-hand expressions of the students externalized and solidified in written form. Secondly, it comes from its degree of reproducibility, by being independent of its researchers/interpreters. And thirdly it comes from selection of researchers/interpreters by making sure of they are equally capable individuals and while observing, generating and interpreting data, independent from each other. Researchers first read the statements to identify the notions, then count and categorize them to achieve a quantitative portrait of the phenomenon. Then, all notions are examined in their context, qualitatively, to see and understand how and in what sense they were employed, and in some cases, how they were employed with relation to other notions; a content analysis was employed.⁷ As a final stage two analyses were brought together to compare and interpret the findings and turn the findings into a preliminary report.

As a follow-up stage, in an open discussion, the initial findings, as they were turned into a systematically sorted and structured report, were shared with the students and their responses were recorded as a follow up verbal interactive stage. The data gathered from the recordings were utilized to evaluate and interpret the initial report, and reconsider it to arrive at conclusions. In this session, researchers focused on making a conversation with students to obtain a conceptual clarity in regard to remarkable identifiable explanations observed in texts in the previous stage. The process proceeded with a micro-level analysis for contextualizing their in-text concepts and categories that students tended to underline in their texts. Such a stage explains how conscious/determinant were students to choose and use such words and categories in answering questions. Also, it clarifies in which context or to what extend they use them.

Methodologically, the findings of the first stage are reported here without any modifications, followed by the findings coming from the second stage, as they were interpreted according to the findings from the first. In each section a bottom-up discussion about the findings were given. Conclusion, established upon the both, rather tries to draw a top-down, holistic picture of the findings.

FINDINGS AND DISCUSSION

First Stage

As one might expect, first finding that came out of the observations is that architecture is never seen as a pure, single entity in itself, but a complex phenomenon that has many, sometimes conflicting and incompatible facets. It is seen that students first tried to contextualize architecture by using 275 concepts in total with a mean value of 2.61 concepts per expression used towards explaining what architecture was about, showing that they conceived architecture as a multi-dimensional phenomenon. In congruence, more than half of the students (60) saw

architecture itself as either a “combination,” or a “mediator” between many things. Since students used multiple expressions to enhance their expressiveness, resulting data were need to be analyzed and interpreted. As the data was examined and interpreted, it was observed that students’ responses to the question “what architecture is all about,” might be categorized under the following headings according to the nature of the expressions (Figure 3). These categories were not given to students, but came out of their answers.

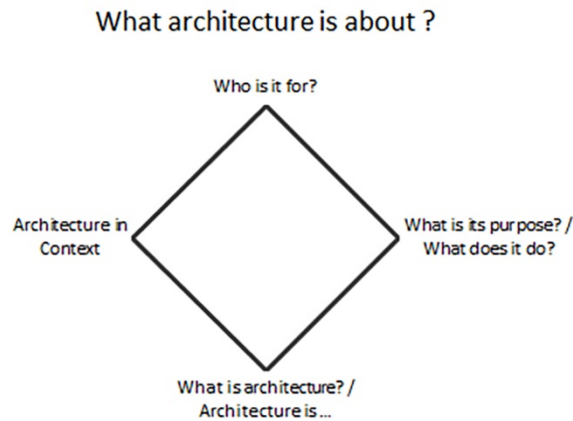


Figure 3. Four main headings as distilled from students’ expressions (by the authors)

Who is it for?

A number of issues that came out of students’ descriptions was to answer the question “what architecture is about,” by referring to the question “who is it for?” (Figure 4)



Figure 4. Obtained main patterns for the category of “who is it for?” (by the authors)

Students seem to be giving one big answer to this question by stating that architecture is about “people,” “society,” and from a larger perspective for “humanity” (42). Actually, these seemingly similar issues are quite different in terms of context and content. The term “people” is more frequently used (26), and it is more individualistic, emphasizing the diversity and independence, as compared to “society,” a less referenced notion (10), that is essentially refers to a “community,” an aggregation, organization of people. Both lack the emphasis on the element of time,

while the second might be more related to values, cultural aspects, etc. "Humanity," on the other hand (6), seeming to be pointing to an abstract, collective, holistic, inclusive and unprejudiced understanding of human race in its cultural, physical, or historical context, including past, present and future all in one.

As far as the individuals (is people) are concerned, there seems to be "implied" or directly stated notion of betterment and improvement, but the influence and affect is both from architecture to people, and people to architecture, as architecture is not only affected by the needs and lifestyle of individuals, but also affective upon them. On the other hand, as far as the society is involved, the notion of change and cultural influences are more emphasized, but this time influence seems to be mostly from society to architecture, as a determinant. Humanity on the other hand, is generally related with bigger ideals, mostly philanthropic.

Although students tend to recognize architecture as "art," it has never been interpreted as phenomena in, or for, itself. In parallel, its autonomy has never been emphasized (i.e. as in "art for art's sake")

What is its purpose, what does it do?

Some students preferred to answer the question "what architecture is about," by referring to its purpose, or to what it does (Figure 5).

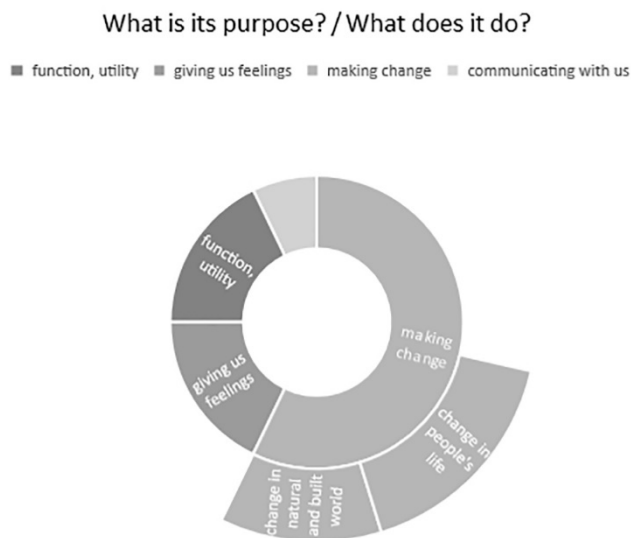


Figure 5. Obtained main patterns for the category of "What is its purpose? / What does it do?" (by the authors)

As one might expect, architecture's utility, its function, or use is widely emphasized in the descriptions (15). Students believed that architecture must answer to people's needs. Although it might be considered under this issue, some of the students took a more phenomenological stance claiming that architecture is primarily about feelings, and giving us feelings (15), particularly putting emphasis on notions such as pleasure and happiness. As such, although it might be easily interpreted as "purpose," this is quite different from mere utility, actually seeming to be competing with soulless or mechanical notions such as "use" or

“function.” However, in both cases definition is related with serving people, their needs, lifestyle, and for their happiness and pleasure as well. This category of descriptions could be investigated under the umbrella term “change.” Architecture in these expressions are associated with some type of change (24) whether this change involves change in people’s life (14) or change in natural and built environment (10). Change in these conceptions are either imply, or directly associated with, philanthropic motives. However, change, and associated notions such as innovation, newness, etc. are never attributed to architecture itself, illustrating that architecture in this conception is rather conceived as some type of device. Few students emphasized the communicative or symbolic function of architecture (6). To these, architecture should either be communicating something or “mean” something, or a symbol of something. This issue is particularly shared here that seemingly one “big” aspect of architecture has not been seen as an important aspect of architecture by the students to describe it.

What is architecture, or architecture is ...

This category of replies might be interpreted as mostly an attempt to answer the question “what is architecture,” or used to complete the expression “architecture is ...” rather than “architecture is about ...” (Figure 6). However, at the same time, they give insights about students’ understanding of “what architecture is about.”

One of the most striking and dominant expressions under this category is the ones that interpreted architecture as art (22). This was in a sense expected, since it is an age-old notion that architecture is an art, in fact mother of all arts. This category is often positively associated with beauty and aesthetics, and feelings and pleasure as well, while in some cases art is contrasted with science and construction.

As it was previously stated above, both in its associations with the notion of change (24) and worldmaking (8) as well, architecture is conceived as a “device.” In addition, some of the students saw architecture also as a means of some type of communication (6), in all cases it was taken as a means rather than ends.

In a number of expressions (12) architecture is interpreted as a projection of some type of idea or concept imposed on the world, on people’s lives, and on nature. There are also unique answers, or answers with low frequency, those are worth to mention here.

Relating architecture with its parent discipline “design” might also be expected, but a few students deemed architecture as about “design” (8). Similarly, architecture as “problem solving” is also one of such aspects; quite a few of students emphasized architecture as “problem solving” (2). Only one student interpreted architecture is “a religion,” a set of rituals and beliefs to be followed.

What is Architecture?/ Architecture is...

■ art ■ device ■ projection of an idea ■ design ■ problem solving

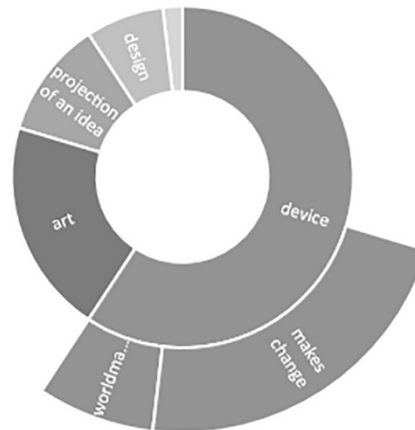


Figure 6. Obtained main patterns for the category of “What is architecture? / Architecture is...” (by the authors)

Architecture in context

It is seen that, many expressions tried to contextualize architecture or try to take it in some context while attempting to explain what architecture was about (57). Within this category, three major contextual layers were identified: physical, historical and cultural (Figure 7).

One of the dominant patterns was architecture’s relation with its physical surrounding whether it is natural or manmade (42). Students seem to be taking architecture as a part of a larger whole, for example a natural setting or an already established built environment. Observations showed that the main emphasis is on architecture as a part of a larger whole, or, architecture’s responsibility for what surrounds it (36), especially “nature” (32), or sometimes architecture’s power to make new environments (namely “worldmaking”) (8) and its power to change (20) them was emphasized.

Another contextualization effort involves history (16). By nature, such a contextualization involved quite a different set of relations. Students seem to be very well aware of the fact that architecture is related with (its) history, where the emphasis is on the “continuity and respect” (10). As far as the time and history is concerned, architecture is equally seen as a thing of the “present” (3), and in addition, deemed as a making that would influence the “future” (3). Actually, when viewed as a whole these observations point to a very complex understanding of architecture, conceived in terms of time and history.

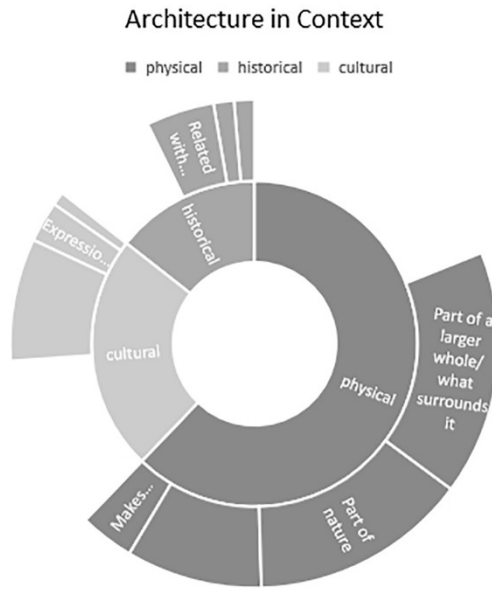


Figure 7. Obtained main patterns for the category of “Architecture in Context” (by the authors)

This final evaluation combined with the so-called architecture’s power and will to change, and its capacity of “worldmaking,” mentioned previously, indicates quite a powerful understanding of architecture as about context making or context changing, and architecture itself as a device of change (however this do not apply to the following issue).

Students seem to be very well aware of the fact that, a cultural product itself, architecture’s relation with culture. In answering the ultimate question, they employed culture and cultural issues (26) as a means of contextualization of the notion of architecture. Architecture is seen as (or must be) a “projection of a certain cultural environment” (18), or should be “expressing a certain lifestyle” (6), or “worldview” (2). However, culture’s relation as a context upon architecture in students’ understanding of architecture rather seemed to be one-way as compared to the previous two categories. This is contrasting with the previous cases, since in them, architecture was seen as a part of certain context, and it was seen as a maker, contributor, and modifier of that precise context. Here, although architecture is very strongly related with cultural context, none of the students mentioned about architecture’s contribution and affect back upon that context. With this respect, notions of worldmaking and change do not seem to be applicable to architecture’s relation with culture. While first points to physical world, the second as having a one-way formative affect upon architecture but not vice versa.

What is not included?

Expressing what architecture is all about, students seem to be not aware of, or perhaps tend to ignore or suppressed some aspects of architecture. Suppressing some while foregrounding others was the part of the game but still, what is not included is also worth to mention here to present the other side of the coin and make the drawn portrait’s contours crisper (Figure 8).

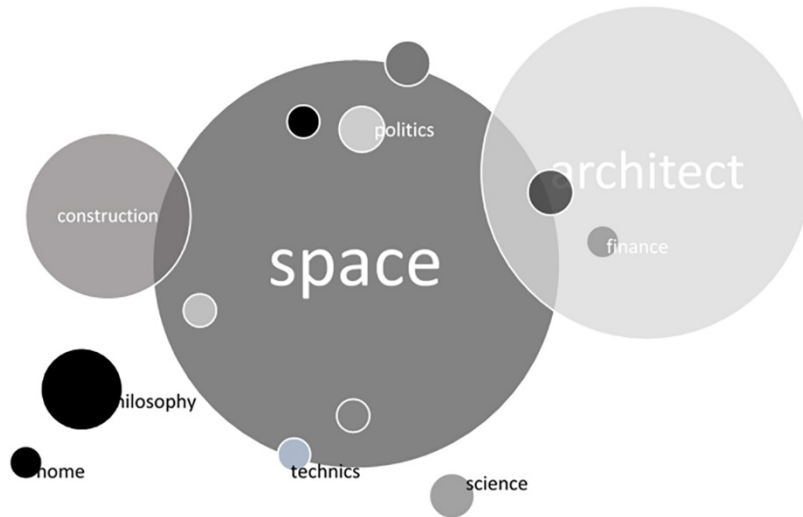


Figure 8. Barely cited and not cited aspects of architecture (by the authors)

First, perhaps most striking is that students almost never referred to architecture's materiality, its constructive or material aspects. Beside this, technical issues those might be associated with architecture are also scarcely referred (4). The notion of science (4), although sometimes used is often referred to as something contrasting with or in addition to some essence such as aesthetics, feelings, etc. Architecture has never been interpreted as shelter, its homing responsibilities were seemed to be totally ignored, and "space" is absent in all expressions. A few expressions mentioned issues such as politics (1), finance (1), and power (1). Architecture's relation with philosophy and its own philosophy is scarcely (3) referred.

Finally, the word "architect" was never used in any of the expressions.

Second Stage

In congruence with the findings of the first stage, students strongly agreed with or tend to accentuate that architecture is not and cannot be a pure, single entity in itself, but involves many things. The emphasis was still on the notions of "combination," "mixture of."

Discussions on who is it for?

As the tripartite structure (humanity, society, and people) that came out of the initial study is shared with them, students seemed to be found it informative, and from the discussions, they seemed to be very well aware of the fact that these were actually quite different from each other in terms of content and their contexts. Out of the discussions, two notions came out to be significant, students believed that architecture is for people, but since it should be projecting the values and beliefs of the society, it also belongs to the domain of societies. Here discussions were branched into two distinct lines of argument: first, they seemed to be disturbed with the understanding of architecture merely belonging to human beings (for example what about animals?), and they tended to

emphasize the differences between the societies, and discuss how architecture should respond to these differences.

Their emphasis on philanthropic issues, on betterment and improvement, and related with this the notion of change are strongly transformed towards a certain direction in the follow-up discussions. Students seemed to be holding firmly to these ideas but they strongly rejected that architecture has right to change and say something about people's life and society. They seem to believe that architecture's, relation with the society and its social and cultural values could only be one-way from society to architecture, and they believed that society's values and beliefs are the direct shaping forces, or determinants upon architecture.

Discussions on what is its purpose, what does it do?

Students seemed to be holding firmly to their understanding architecture as something of utility, something that is about function, or use. Students strongly emphasized that architecture must answer to people's needs. As far as the notion of utility was concerned, their accompanying conceptualization "architecture is primarily about feelings, and giving us feelings," were considered as a different category, conceptualized as something different from "utility." As compared, while utility of the first kind is seen as more essential while the second category is seen as something of a flavor, or a required addition to the first.

Understanding of architecture involving change is also strongly modified here towards a certain direction. Students agreed that their initial responses stating that architecture is about change, but they strongly rejected the notions that architecture has power and right to change things, or architecture has something to do with such an understanding of change. Students emphasized that as the people's life change, environments change, cultures and societies change, architecture must on the one hand keep up with these changes on the other submit itself to the conditions coming out of these changes. They believed that only in this sense, architecture might be about change. This position seems to be in congruence with the initial findings, that architecture was never associated with innovation, newness, and such.

Discussions on what is architecture, or architecture is ...

This category involves a considerable modification upon the initial findings. As the students were informed from the findings coming out of the first answers, that, architecture was seen as an art, they strongly objected. They primarily brought forward the notions that architecture is utility, it is about use, it is about people, society, and similar previously accentuated dominant themes, as an opposition to the statement "architecture is art". On the other hand, no one denied that architecture involves artistic aspects. They seemed to be tending towards, architecture considered as art, is something far from its primary essence, but pointing to architecture's secondary (perhaps less important) aspects such as looks, beauty, aesthetics, which actually are some type of

“additions” made to the essence. Paradoxically, they also seemed to require this “addition” as mandatory, without which architecture is not architecture at all.

Discussions on architecture in context

Their attempts towards contextualization of architecture was presented to the students, as it was given above. They were surprised to see their responses involved such a contextualization.

Here students firmly hold onto their initial responses with a number of modifications. In architecture's relation with its physical surrounding, nature came forward more while students tend to be suppressing man-made environments such as cities as secondary. So architecture was considered as something that should be respectful to, and obedient to its surrounding, and what lies before it meant more the “natural” setting than the “man-made” setting.

Contextualization efforts involving history is also further supported, but with modifications. While students seemed to be agreeing that architecture is a part of the history, they got history as something of the past, but not of the present and the future. Therefore, they strongly rejected that architecture could shape future, or power and responsibility to do so. However, they emphasized that throughout the course of time, architecture conformed to the specificities of that period, and it should be conforming to the ones, coming with the future.

Therefore, the initial findings implying that students might be seeing architecture as about context making or context changing, and architecture itself as a device of change is refuted here.

Architecture being a cultural product itself and architecture's relation with culture is strongly accentuated. Students further emphasized that architecture should be conforming to the cultural environment, must be expressing the specificities of the society it belongs. In congruence with the initial findings, culture's relation as a context upon architecture in students' understanding of architecture rather seemed to be one-way. They believed that architecture could only be a part of a certain cultural context, but has no power and right to shape, contribute to that precise cultural context.

Discussions on what is not included?

Students were also asked why they did not include some aspects or why they did not associate architecture with a number of notions.

As students were told that they forgot to mention about architecture's material being, its construction, its stability they argued that there is no need to state these aspects since it is obvious, and since these are “already” there. This is similar to the notions such as shelter, and homing, as either students did not find these worth to mention or they were taken as granted. Absence of the notion of “space” is received with silence and kept unanswered.

CONCLUSIONS

The purpose of this article was to uncover first year students' view of architecture (their pre-established schemata or prejudice structures towards architecture) through content analysis. To this end schemata theory is used as an underlying theoretical perspective. Mainly a descriptive qualitative exercise was employed to answer the research question: "What architecture is all about". Data collection and following analyses allow the researchers to focus on a mismatch between trajectory of architectural education tradition and the first-year students.

As it was mentioned earlier, students seem to be very well aware of the fact that architecture might be about many things, sometimes in conflict with each other, in combination. As the overall picture checked, it could be easily concluded that students locate architecture closer to humanities, social sciences and art, rather than to natural sciences. Students' tendency to locate architecture within some type of cultural, intellectual and/or physical context while trying to describe it was interpreted as neither works of architecture nor architecture with a capital "A" were seen as isolated entities, or phenomena, conceived and able to exist within a contextual vacuum. Students seemed to be very well aware of the fact that architecture is tied to what existed before and outside it. On the other hand, architecture's relation with social, cultural and historical contexts were seen as one-way, from the context, as a directly forming or determining agent upon architecture. Although its artistic side is acknowledged, the idea of architecture as art is strongly rejected primarily under the pretext of architecture's utility, and function. When viewed from a wider perspective, following interpretations might be made. Architecture's utopian (in the term's both senses) or idealistic dimensions, as these were conceived by modern architecture at the beginnings of the last century, seem to be suppressed in architecture's present understanding by the first-year students⁸. Categorically, architecture's relation with humanity, society or the individuals were placed at the core of the definitions, but architecture's power and will to change people's life, its responsibilities to make a better society and living environment conceptualized in a different way. In its relation to humanity, society or the individuals, architecture is rather placed in a passive position, not an actively forming, or even contributing agent, but rather a subordinate that should follow what was brought before it, follow the steps of the society. Therefore, philanthropic aspects of architecture were seemingly there, and emphasized by statements such as "for people," "for better life," "for improvement," "for better society," "for better environment," but it seemed that "for" in these expressions imply a resignation from architecture's operational power, and a submission to whatever comes before it⁹. This is quite interesting, and on the one hand implying a type of determinism, particularly a certain genre of it, called "historical determinism," on the other, pointing to an implied belief in so-called zeitgeist¹⁰. For example, students always claimed that architecture's relation with the cultural and historical aspects of life is/must be one way, from these phenomena, as absolute determinants, to

⁸ About utopia and the utopian content of architecture see (Tafuri 1976); (Rowe & Koetter 1984); (More 1988), (Vidler 2001); (Choay 2005); (Baudrillard 2007); (Jameson 2012).

⁹ About utilitarian architecture and philanthropy by architecture see (Harries, 1997); (Cary, 2017). There is a detailed discussion of it in the *Collage City* (Rowe & Koetter 1984). In addition to them, there are many web sources grounded onto the issue. Some of them are available at: <https://www.smh.com.au/opinion/we-can-build-better-futures-through-philanthropy-20150118-12smrl.html>; <https://unhabitat.org/philanthropic-architect-commits-to-build-20000-refugee-homes-in-north-kenya/>; <https://archinect.com/features/article/150008944/architects-of-social-responsibility-views-of-humanitarian-architecture-in-practice> (accessed 18 October 2018).

¹⁰ About zeitgeist, teleology and historical determinism see (Hegel 1943); (Popper 1963); (Gombrich 1969); (Popper 1974); (Colquhoun 1981); (Rowe & Koetter 1984); (Anderson 1987).

architecture. In parallel, history was seen as essentially something about the past, and its relation with architecture is emphasized according to this understanding. As far as the future is concerned, it is something that one must yield itself, so must architecture, that it should always follow the change, namely jump on the latest bandwagon, and accept what was given without criticizing it. This position is further supported in student's conception of architecture as concerning art, but to the degree, it is about some type of aesthetics, or beauty, an "addition" to architecture, but not viewing architecture something concerning inquiry, difference from what exist before it, innovation, or a change for and in itself, or a device.

Students' conception of architecture was rather pessimistic since they seem to believe that as architects, we cannot change anything, we do not have right and power to say something, and change is something that we follow. They were also conservative about almost everything, since they believe architecture should conform to history, culture, and society, namely the status quo.

As a whole students' horizon of expectations and their preconceptions about architecture seem to be quite a mismatch with any trajectory of architectural education tradition that might take notions such as newness, change, difference, innovation as essential to itself and its intellectual core, and architecture as a device to fulfill its philanthropic tasks¹¹. Surely docking ourselves at the safe-harbor of technological determinism and its accompanying digital determinism, as many of the present pedagogies do, would be an option, but If we are to keep these "values" central to architecture, the portrait drawn here seems to be quite a challenge to us educators that we would be possibly addressing in the near future. To this end, the findings might be resulted in various conclusions.

One of the conclusions obtained from these findings might be to think that there would be a need to converge what pre-educated minds have in their mind as architecture to its expert counterpart. One might argue that this would help to bridge the gap between popular conception of architecture represented by the first-year students and conception of architecture as distilled from the expert knowledge of the discipline. Such a position seems to be demanded a substantial convergence (of students) in the need to be more deeper understanding of architecture that have emerged from education. Such a position also seeks an answer to the question how is the nature of architecture to be brought into the scope of the first-year students more openly and how might we contribute them with having (achieving) an unbiased pre-educated state of minds where one open and curious about the discipline rather than the other way round. (or in another words, how might we orient them toward being more knowledgeable and open agents before choosing the discipline). Another conclusion might be drawn via directly targeted to the very core of the disciplinary knowledge which possesses inherent traditions distilled from both academic and occupational domains (mainly expert in character) those which also largely orchestrate identities of architecture.

¹¹ We mean the intellectual content of Modern Architecture, artistic and architectural avant-garde of the 20th century, the Bauhaus, the makings of the so-called Texas Rangers of Cornell, and genuine descendants of these and similar avant-garde "schools."

This approach, that may be catastrophic at its most extreme, mainly deals with the revisionist self-critical question of how architecture might be changed. Such a position concentrates on the findings (also on the question of “what architecture is all about.”) especially on the basis of change. The nature of the issues addressed under this position may vary considerably (from conceptual towards more instrumental and technical).

It is important to stress that neither of these conclusions should be viewed as one stepped, narrow, prescriptive formula. Surely with the increase of similar studies the situation will be able to be understood clearly and handled from different perspectives, scales and frameworks. This study is aimed to be part of baseline data for carrying out future investigations, a step toward more systematic analysis of changing state of today’s architectural education and a larger/global effort to map this phenomenon with its possible effects in architectural education.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

FINANCIAL DISCLOSURE

The authors declared that this study has received no financial support.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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Resume

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A Review of Modernization: The Giresun Government House and Administrative Center

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Abstract

Purpose

The purpose of the study is to discuss the Government houses erected in the latter Ottoman period, and the administrative centers erected in time by other public buildings located around over the changes they made to the urban space and in particular over the Giresun province periodical as a necessity and symbol of administrative modernization.

Design/Methodology/Approach

Giresun's modernization experience on the periphery was conducted by a periodic reading. The Late Ottoman Period is defined as the 'First Steps of Modernization (the end of the 19th century)'; the first years of the Republic as the 'Fundamental Modernization (the early 20th century)'; today is defined as 'New Searches / Tendencies in Modernization (late 20th-21st century)'. The method of the study was determined by the collection of verbal, written, and visual data Type the design/methodology/approach of the paper here.

Findings

Buildings that were built, demolished, or changed their function in each period in the context of their own historical conditions, are part of the city's modernization process. Accordingly, the administrative center, which was erected during the Ottoman period, continued its functional and symbolic meaning for many years, but has recently started to lose this feature and its structural quality and meaning.

Research Limitations/Implications

Giresun is placed in the center of the study as a township in the Trabzon province in the late Ottoman period, and as a small port city in the Republican Age. The study focuses on the period from the late period of the Ottoman period to the present.

Originality/Value

Today, the building, which has begun to lose its effect, despite its urban, architectural, and symbolic value, should be evaluated in a way that respects the public interest and should continue to preserve its rightful value as an important part of the urban memory. This study is unique with contribution to studies related to a city that has not been placed in many urban, architectural, and historical studies and with its potential to increase sensitivity to periodical buildings in the city as one of the parts that complement the city's culture and identity.

Keywords: Administrative center, Giresun, government house, modernization

INTRODUCTION

The standard narrative on the architectural history of the Ottoman Era that remained valid until the last quarter of the 20th century delineates 16th-century classical style as an expression of the authentic creativity and cultural purity of the Ottoman Era whilst labeling 19th-century architecture as a clear sign of social and cultural corruption as well as political bankruptcy. This description degrades the striking and sharp transformation experienced by the late-period Ottoman Era architecture to a mere imitation category. The same approach tends to label the same period as quite a complex transformation without a specific route because of all the crises, dilemmas, indecisions, whims, and contrasts it already entails (Ersoy, 2009). Yet, the trends of a period should always be assessed as per the conditions of this specific period. Within that viewpoint, Westernization efforts dominating the 19th century can be perceived as the efforts to form a new organization initiated by the Ottoman Era; sustained and stabilized by the ensuing Age of the Republic as well as the modernization process of a state. As noted by Göle (1999); modernization refers to the name of the transformation route designed on the basis of the histories and cultures of varied countries. It is infeasible that modernization histories of all geographies could overlap one hundred percent. However, it is safe to claim that they have a similar roadmap and specific breaking points could be determinants in this process.

In that sense, Turkish Modernization has an approach of which its beginning can be dated to the Reforms Period and I. Constitutional Age from various aspects. Yet, by the modern age, it had adopted novel dimensions during the Republican State. Here, the ultimate goal was to enable a social and intellectual harmony with Western Europe (Mardin, 1999). The modernization efforts that began with the Reforms Period, and maintained into the Age of the Republic, moved along a similar path in terms of methods and practices; still they also consisted of huge differences. In the Ottoman Era, initially modernization of higher institutes was the goal, while in the modernization story of the Age of Republic, the aim was not only to change these institutes, but also to transform the whole social model thus, making modernization possible (İnsel, 1990). In the Ottoman-Era modernization, state formation went through a complete change, but it was still imperative to protect social order. In other words, it was allowed to continue with an organization-model where the old and the new coexisted again (Hanioğlu, 2016). However during the Republic modernization, when major changes were evident in the institutional and social structure, there was an ideological legitimization attempt in all aspects from the economy to private and public life, and city to architecture, as an outcome of the consistent and calculated actions of a supreme mind (Tanyeli, 2003 as cited in Çetin, 2012). In that case, the aim was to create a holistic modernization that annulled the dual organization caused by the coexistence of the traditional model that symbolizes the past in state establishments and

modern organizations as a symbol of the new. In the early years of the Republic, the underlying cause of defining the modernization attempt as a radical modernization is related to this approach. In that sense, it is safe to claim that making sense of the modernization history of cities through an independent viewpoint from the Ottoman Era or accepting it as new model only born out of the Age of Republic, would cause disconnections between urban and architectural narrative within the historical continuum. In the final phases of the Ottoman's legal, militaristic, administrative, cultural, and social change attempts in all the state departments must be seen as the first steps of the radical modernization moves attempted in the Age of Republic. Any period must be analyzed within the context of its authentic historical conditions, societal, economic, and social changes.

Architecture, by virtue of its interconnector dimensions that impact intercultural communication and public space patterns, is an objective narrative of this modernization process. That being said, architecture has transferred from the center to the province a huge authority with its capacity to adapt in novel programs, and needs and forms that have striking similarities which can, however, be masked under different meanings (Çelik, 2012). Hence, Government Houses and other public buildings, constructed as a mirror of novel insight and architectural system, can only adopt meaning once read on the basis of continuity of modernization. Although these structures draw similarities in terms of their functions, dimensions, and organizations in provincial centers¹ they pose a much stronger statement in terms of meaning and symbolism. Defining the kind of changes they undergo during an historical process would be an eye-opener in studies that explain the modernization experience of cities by focusing on the social, economic, and spatial growth of places that they were erected. Therefore, the aim of this study is to offer a chronological analysis of Government Houses built in the Late Ottoman Era as a symbol and requirement of administrative modernization and the administrative centers formed in due course by surrounding public buildings on the basis of changes that they had already triggered in the urban space. Within that context, during the Ottoman Era, Giresun - as one of the districts of Trabzon sanjak and a minor port city in Age of Republic- has been put as the focus point in this study as a city undergoing the modernization process from the Ottoman Era until the Age of the Republic on the periphery. The government House built in the Late Ottoman Era in the city and the Administrative Center defined by the surrounding structures has been one of the determinants of urban growth as one of the major focus points during the Age of the Republic and its aftermath. Thus, the period when the Ottoman modernization efforts intensified and a new government house and administrative center were built in the city from the Late Ottoman Era to the Republic is discussed under the title "First Steps of Modernization (the end of the 19th century): Construction of Giresun Government House and Administrative Center", and the period that includes a fundamental

¹Studies on Ottoman Modernization that mostly focused on cities, practices that were executed to correct the disconnection with Ottoman rural cities and to feel its power were included in the analysis; thus, it could be viable to enrich the current approach towards this period.

and comprehensive modernization from the declaration of the Republic to the year 1980, and the traces of this development were observed in the city is discussed under the title "Fundamental Modernization in the early years of the Republic (early 20th century): The Past of the Giresun Government House-Focused Administrative Center"; and the period when the perception of modernization began to change both globally, administratively, and ideologically and how this transformation was reached much more rapidly in the urban space under the title "Changes in the Perception of Modernization (the late 20th - 21st century) of the Giresun Government House- Focused Administrative Center. The applied method was collecting verbal, print, and visual data of the said periods by following a chronological order in the analysis. Each period has been discussed in terms of its unique historical conditions; structures, and urban works that were erected, destroyed, or changed for different functions have been acknowledged as the elements that impact and define the modernization story of the Administrative Center. The growth of the Giresun Government House and Administrative Center from the past to date has been narrated in line with findings backed up with photographs, verbal, and print resources; they were drawn into the maps as schemas, and the chronological differences were comparatively analyzed. With these discussions, the change in the field and the cultural loss caused by the change is emphasized. Thus, the study will raise awareness about the building and its surrounding administrative center, which has started to lose its effectiveness despite its urban, architectural, and symbolic value today, is to be evaluated in a way that will protect the public interest and at the same time continue its existence as an important part of the urban memory. Different perspectives for the studies that will protect the social and cultural essence of a city that could not take a place much in architecture and history and contribution will be made to raise awareness regarding the protection of urban and urban identity.

SPATIAL TRACES OF OTTOMAN-ERA MODERNIZATION IN THE PROVINCE: THE GOVERNMENT HOUSE AND ADMINISTRATIVE CENTER

Upon the proclamation of the Imperial Edict of Reforms in 1839 and during the reign of II. Abdülhamit that speeded up reform movements² and modern legal organizations, the modernization process kicked off, and a wide range of extensive changes emerged in legal, cultural, political, social and administrative spheres (Ortaylı, 2008). In the age of the reforms, the Ottomans aimed to compete against Western hegemony via using the advantages already gained by their former actions. The projection of this aim within the context of the city was to build modern cities that reflect the Western lifestyle (Yerasimos, 1999). In that sense, such reforms that can be accepted as the start of the modernization process, were initially made more visible in the urban space. By replacing the old style of provincial administrations that collected unconstitutional

²During the reign of Abdulhamid II (1876-1909), the enactment of the first Ottoman Constitution, Kanun-i Esasi, constitutes the beginning of the reforms in that period. Innovation activities in every field focused especially on education, military structure, transportation, and the management mechanism.

taxes from the center and provincial towns with the dominance of state order and authority, it was now the aim to establish a modern, central, and direct control mechanism (İnalçık, 1962). Nevertheless, the reform movements or practices that envisaged a number of quantitative and qualitative changes in the local administrative organizations ruled by the center could find their match in a longer period though with limited content in the provincial towns when compared to the central cities. The 1870-dated Law on Cities lays the ground for building the centers in which state officials transferred from Istanbul to provincial towns would be settled and newly-identified administrative functions would coexist (Aslanoğlu, İdil et al., 1984). Within that context “new centers” defined as the Administrative Center and the inclusion of Government House, the city hall, the railroad and station house, courthouse and many other elements created an attraction zone for new service types, such as banks, hotels, and shops (Osmaç, 1998). With such structures, a new spatial pattern was molded and the interrelationship between the city and its periphery adopted a new style; changes in communication channels directed the axle of consumption models and lifestyles in the domain of foreign trade and new economic relationships in cities towards a western-focused cultural structure became apparent (Tekeli, 1985). The Government Houses were built to symbolize the power of the central authority and the spatial needs of the surplus bureaucracy in provincial towns that had adopted a new status. In the entire Ottoman Empire a new architectural expression of a different monumentality and positioning principle were introduced to the cities by adopting a functional repertory unknown before.³ Thus, religious structures that contributed to describing the silhouettes of Ottoman cities in former centuries were replaced by model structures of militaristic and civilian architecture and fueled a divergence in the cities they were built by their modern associations (Avcı, 2017). In such an organizational model, the police station, the courthouse, the city hall, the post office or the clock tower are positioned as a group in the periphery public buildings. The telegraph office, prison and similar units were also built in connection with the Government Houses or were positioned in the lower floor of the state structure (Yazıcı, 2008 as cited in Çelik, 2012). In that case, these attempts to reorganize and modernize the Ottoman Era’s public system point to the fact that Government Houses and administrative centers were constructed due to a functional necessity as well as an ideological content. For this reason, architectural and spatial similarities can be found that may be observed easily between the Giresun Government house, which is the focus of the study, and the government houses built in different cities such as Amasya, Bartın, Samsun, Mersin, and Safranbolu (Figure 1). However, the Giresun Government House has some unique characteristics as the most dominant element of the city silhouette in every period because it has sustained its function for many years and its location dominant over the city and its architectural features.

³Up until the 19th century, the mayors appointed to the head office of the local administration generally resided in the houses reserved or hired on their behalf, but in the 19th century the state affairs performed in the houses where the administrators lived changed to their current model after the modernization movements and independent edifices started to be allocated for administrative works. For detailed information see (Çadırcı, 1997).



Figure 1. At the end of the 19th century, Government Houses were built in different Anatolian cities: Trabzon (https://dede.facebook.com/pg/TrabzondaNostalji/posts/?ref=page_internal); Samsun Government House (Ç.Koşar Archive); Sivas Government House (S.Güner Archive); Amasya Government House (S.Güner Archive); Giresun Government House (Istanbul University, Yıldız Albums, No: 90854-0027); Safranbolu Government House (Ö.Öztürk Archive).

The stylistic, functional, and semantic traits in the provincial towns, and modernization process supported by public buildings and construction works were continued in a broader content during the Age of the Republic. In this period, the Government Square and Administrative Center defined by its surrounding structures are, likewise, the sites in which modernization is made apparent in a public sphere. Constructed public buildings being the symbolic expression of modern societal organization, were maintained to define urban space and steer the direction of growth. On the other hand, from the Late Ottoman Era until the early Age of the Republic, architects who molded urban space and designed public buildings in both of the periods were alike. It is thus only natural that in the early years of the Age of the Republic, urban and architectural practices reflected traces of the Late Ottoman Era and were designed in an identical architectural language. In this period that can reasonably be accepted as a transitional process, architects attempted to add an authentic identity to the architecture via new pursuits. The public buildings they designed were positioned in the city as the kind of images where this pursuit was exhibited, narrated, and promoted. Yet, the Government Houses transferred from the Ottoman Era failed to be adequate as the administrative system expanded; there was an emergent need for various organizations and new additions that could comply with unprecedented conditions. Therefore, the new Government Houses erected in the first years of the Age of the Republic were built in a way to entail a myriad of functions due to reasons such as ; a lack of suitable spaces in the city or the capacity of state order to generate new functions under all circumstances (Düzenli and Taşar, 2012). Yet, in due course, governorship, courthouses, police departments, the gendarmerie. and other administrative units in these offices changed due to expanding and diversifying social needs. They were then organized as independent spaces that aligned with their own functional necessities.

Dumont and Georgeon (1996) claim that in the transition of the modernization process from the Late Ottoman Era to the Early Republic, through the modern buildings performing new functions of port cities and exhibiting a more organized urban model with the new settlements; this corresponded to a better texture of the city. By means of developed

transportation, port cities could establish closer relationships with their region or interior sites. Trade operations operated through the port enabled a growth in the capacity of the urban economy and helped these cities to achieve a greater scope of development. In the same vein, it can be argued that as a port city, Giresun also followed the same growth trend. During the construction of the Government House and subsequent construction works such as courthouses, prisons, mosques, community gardens and similar public buildings that stand for the Administrative Center are also in parallel with this position.

A MODERNIZATION REVIEW: GİRESUN GOVERNMENT HOUSE AND ADMINISTRATIVE CENTER

Giresun, as a result of increasing trade operations in the 19th century, turned into one of the dynamic port-cities in the Ottoman Era. In those years it used to be a township of Trabzon sanjak. Upon its annexation to Ottoman lands, Yavuz Sultan Selim, who used to be the governor of Trabzon-centered region⁴ attempted to redirect the traditional settlement site that grew within the castle on to the peripheries of the castle (Emecen, 1997). In due course, as a result of being a port city situated on the Black sea shores, and an intercity connection of transportation networks that connected the region with interior sites, it significantly contributed to the vital role Giresun played in its located region. In that sense, the city moved beyond being a small sea town as of the second half of the 19th century and gained a critical trading volume with its port and institutes that supported its growth (Yüksel, 1997). Giresun, is one of the important transit axes of the region due to its road connection between the interior parts and the port. That being said, Giresun can be classified as one of the port cities that either directly or indirectly impacted economic relations that Ottomans formed with Western states. One of the most significant causes of this growth is the new engagement of Blacksea with international trade. The hazelnut started to be marketed via the port. Consequently, its value and production volume jumped and became a profitable source of income for the locals. After marketing the hazelnut to European countries, new employment opportunities flourished in the city (Yüksel and Yeşilot, 2016) and far-reaching changes that affected demographic, social and cultural format of the city took place. The first generic intervention in this process on urban space was the construction works for a Government-Office focused Administrative Center. Taking all these reasons into account, and despite the relatively small population and area of the Giresun settlement, it managed to undergo a concurrent experience with the modernization process of the state from the Ottoman Era until the Age of the Republic. In parallel with the inner dynamics of the city, these practices climbed at times while falling at other times; however, during the Age of the Republic, they moved beyond spatial organizations and became a new way of living while also fueling radical changes in respect to the social aspect. Within the framework of this perspective, the

⁴ In the extension of the city center; Yavuz Sultan Mosque erected, seashore, surrounding structures that remained Muslim-faith complexes and also the biggest library of Trabzon sanjak built in the city center can be accepted as such contributions.

modernization story followed through the development of the administrative center and was discussed over three periods in parallel with the modernization process of the country, including its current situation (Figure 2).

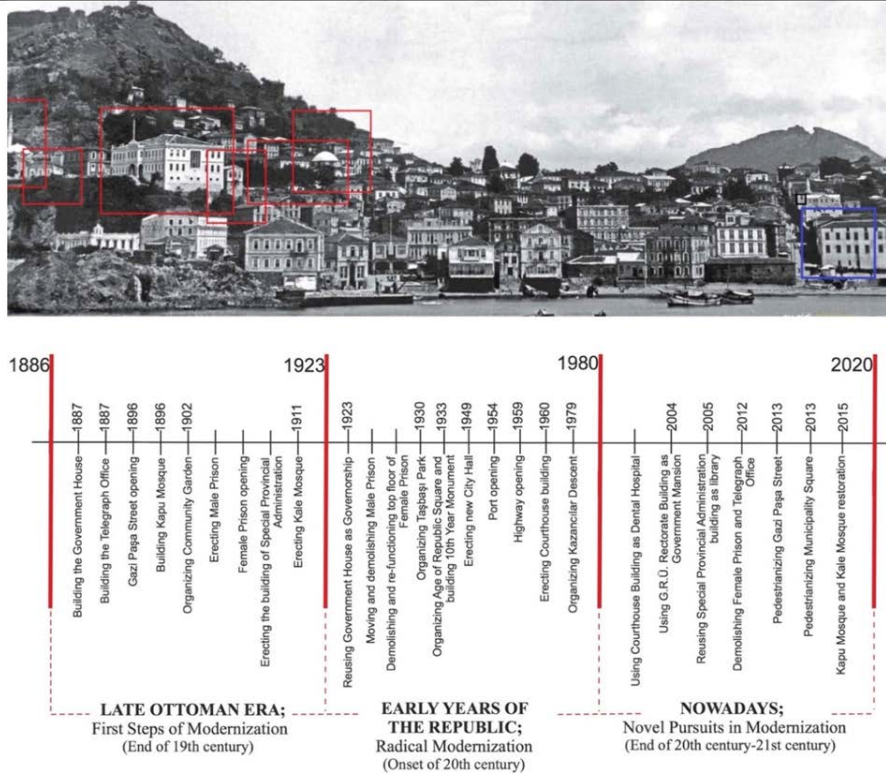


Figure 2. End of the 19th century, Giresun Government House and Administrative Center Structures (Işık and Dervişoğlu,2011), Construction Processes (Prepared by the authors)

First Steps of Modernization (End of 19th Century): Building Giresun Government House and Administrative Center

In the last quarter of the 19th century, as required by the evolving administrative system, a symbol of the sites where, in accordance with urban topographic structures, the administrative functions were collected is the site known in Giresin as the Government Square. This square that placed the Government House at its center is situated on sloping land and as time passed by, it evolved into an Administrative Center in which the surrounding structures were defined. Thus, the union of the structures within the Administrative Center not only displayed a collective city image, but it also empowered the modernization perception in the city. Within that context, the Government House is the very first structure that defined the Administrative Center, which was topographically situated onto a dominating site of the view over the city and the port. It is also the most powerful architectural image in the square. In due course, next to the construction works in the city, a number of urban and architectural elements that would serve for the modern functions demanded by the period were built. The government square moved beyond a site in which only central administration functioned. Rather it became an influential public site that had power in local city policies. The Community Garden that instilled the square function in the

land before the Government House, the Special Provincial Administration and Male Prison built right opposite the office, the Female Prison right beside the office, Gazi Street that opened towards the government square and offered various trade functions, telegraph office, Kale Mosque as well as the open and closed public space formed by Kapu Mosque collectively transformed the Administrative Center (Figure 3).

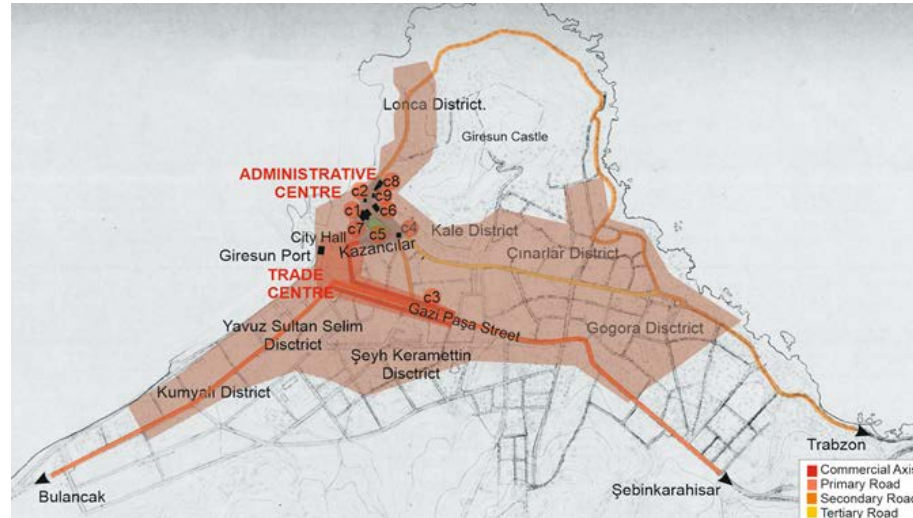


Figure 3. First Steps of Modernization (end of 19th century): Building Giresun Government House, Administrative Center and the urban space⁵ (Prepared by the authors)

⁵ In order to facilitate reading and demonstration, the structures are firstly coded and arranged in a chronological order. In this context, the Government house is defined as (code1), Telegraph Office (code2), Gazi Street (code3), Kapu Mosque (code4), Millet Garden (code 5), Male prison (code 6), Female prison (code 7), Provincial Private Administration (code 8), Taşbaşı Park (code 9), Cumhuriyet Square and the 10th Year Monument (code 10), the New Municipality Building (code 11) and Municipality Square (code 12).

1887. Building of Government House

The presence of a Government House in the city as of the 1860s has been documented (Balçı, 2012). In the early years, an old mansion situated in a dominating position towards the city while also representing the most magnificent structure in the square was rented to be employed for administrative use. In 1886, after abandoning the idea of functioning old offices in cities as Government House; there a novel Government building was built in the city. The mansion of which construction works first began in 1887 was, as documented in the archive records, had plan and map works in 1886 (Karaman and İltar, 2008); yet its original drawings are yet to be found (Figure 4). It has been stated that it was built by the decree of the Municipality Mayor Captain Yorgi Konstantinidi with the support of District Governor Ziya Pasha that construction expenses for the Government House were reimbursed with the donations of locals (Balçı, 2012). It was positioned on the castle road that connected the city with the Trabzon Province and at the intersection of one of the very first settlements: the Kale District and Kazancılar Descent. Since, in the said period, there was not a coastal road passing through the shoreline, the axle where the mansion was erected stood as the main artery connecting the city with its hinterlands. Right opposite the western gate of the Giresun Castle walls some of which were demolished within historical process (Karaman and İltar, 2008), it was erected in a dominant position both for the port and the city by leaning its back on the feet of the castle. As is common in many provincial towns, no data exists in the official records on the master of the structure and the commissioned architect.

Yet, considering the masonry structures of the period, it can be argued that they reflect the craftsmanship of Non-Muslim stonemasons.

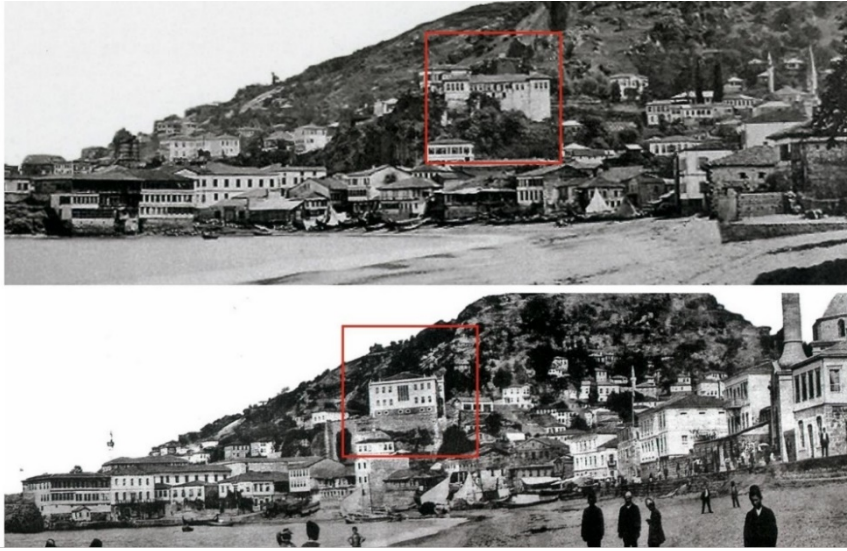


Figure 4. End of the 19th century: The old mansion employed as Government House and newly-built Government House (Işık and Dervişoğlu, 2011)

The building is recognized by its duty to represent state reputation, but at the same time, as a symbol of the first steps of modernization in the city, it is the very first structure articulated in the urban fabric of the city. Large enough to meet the spatial needs of an expanding provincial bureaucracy, it enlarged as a symmetrical mass in a rectangular figure and horizontal growth; thus, displaying certain similarities with the specimens in a Neo-Classical style. Due to the topographic traits of its situated land, it is accepted as a masonry building consisting of two floors placed onto a half-basement ground. Two main gates matched to the building through its east-west facades can be provided via penthouses that were highlighted by protruding from groundmass and completed by triangle frontons. As a popular trend in that age, in order to display state symbols, there was the Sultan's tughra and various embroiders mounted onto penthouses. The spatial plan of the building was determined by rooms placed around a wide rectangular interior sofa, two curvilinear stairs placed onto symmetrical axle of the narrow bands in north-south axle of the sofa, and entrance gates placed into the east-west axis. Windows that had relatively wider gaps than the typical public buildings of the age allowed the interior sofa of the structure to receive light and the ability to control the port as well as the castle entrance gate (Figure 5).

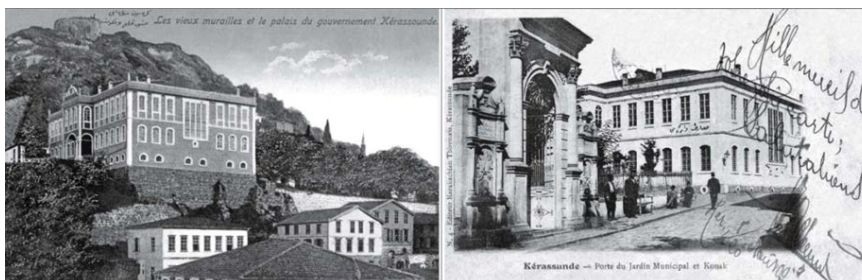


Figure 5. Ends of the 19th century, Government House (Istanbul University, Yıldız Records, No: 90854-0027) and Government Square (Işık and Dervişoğlu, 2011)

1887. Building of Telegraph Office

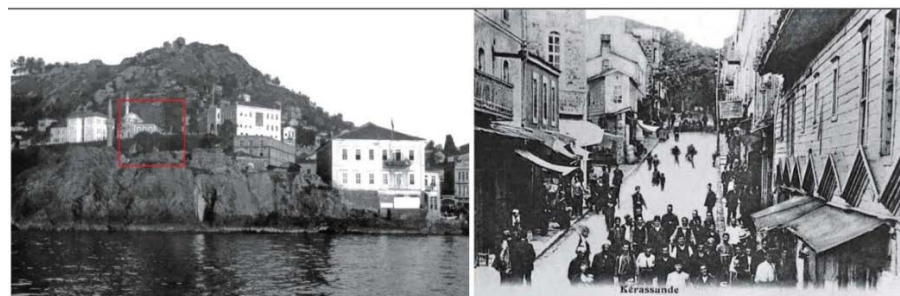
The new administrative system envisioned by modernization mandated to build telegraph offices that would assist central administration in controlling the province, and an example of such structures was erected in Giresun. It has been reported due to the telegraph line installed in 1869 from Trabzon, the building in the city of a telegraph office was discussed (Karaman, 1999). Resources also mention that in different periods there used to be two telegraph office structures situated in different regions of the city. The very first telegraph office structure in the city was the edifice right next to the Government House which was reported to have been demolished in 1871 (Mercan, 2009) (Figure 6). In due course, the need for a secondary structure became apparent. The construction license for the secondary telegraph office positioned in the İskelebaşı location was issued in 1887. There was damage in the building due to the 1907-dated fire in the square (Mercan, 2009). Thus, in line with the functional meaning of secondary structure, despite not being built right inside the Administrative Center, positioning in a site connected with the municipality and port could still help to secure central supervision, which can be thought to add value to the Administrative Center, though indirectly.

1896. Restoration of Gazi Street

The former trade axle, also known as Kazancılar Descent represented a traditional trade center where artisans were mostly situated: Gazi Street on the other hand, symbolized a novel trade axle in which new commercial functions such as draperies, pharmacies, and Western style chic department stores and restaurants were located (Figure 7). In the ensuing years of the Government House construction, the streets were furnished in cobblestone pavements⁶ and provided new spaces to open places that could meet emergent functional necessities. In that sense it can be argued that as the very first open public space of the modernization process in the city, it offered an early practice for modern life, and symbolized the modern trade center in the city. By the east-west axle additions to Gazi Street that determined the transportation network character of the city, access to the Administrative Center became more convenient and they also acted as a backbone in providing a spatial representation.

⁶In the “Salname-i Vilayeti Trabzon 1313/1896 p.247” annual, it is stated that “During the rule of the esteemed Mayor Captain Yorgi for a period of 18 years; modern streets were opened in the city, pavements were built, and gardens, parks, fountains, and roads that led to the castle from both ends were erected”. As seen, the street referred to here was taken as Gazi Street.

Figure 6,7. End of the 19th century; the former building used as a Telegraph Office, and Gazi Pasha Street (Işık and Dervişoğlu, 2011)



1896. Kapu Mosque and 1911. Rebuilding of Kale Mosque

Although during this period, the aim was to create a modern city image through public buildings, religious structures that were erected in line with the novel architectural trends of the period can be categorized as the structures depicting the administrative centers in provincial towns. In the same vein, the Kapu Mosque (1896) that was already present in the Giresun Government Square (Figure 8) and Kale Mosque (1911-12) were demolished for construction works in the reign of Abdülhamit II and were then rebuilt (Fatsa and Sarıtaş, 2012). That being stated, it can be claimed that both mosques formed a partnership by means of their spatial connection formed with the Government House and with the ideology of the age thanks to their architectural styles. On the other hand, after their reconstruction, these mosques contributed to the frequency of using the Administrative Center and offered a spatial continuum as the components of this Administrative Center.

1902. Building of the Community Garden

The community gardens that were organized as a micro model of Western parks were situated either right opposite the Government House or in land dominant to the city. Situated right next to the Giresun Government House, the Community Garden was built in 1902 as an outcome of a similar perspective (Figure 9). Its interior space decorated with a myriad of trees of different kinds, offered the citizens novel forms of recreation. It could be accessed through a wide and vaulted monumental crown gate, and both sides of the crown gate exhibit fountains that were situated in a symmetrical organization. In those years, the incompatibility between the daily life practices of Muslim residents and modern life practices provided in the park resulted in the recognition and using of this site by only a limited segment of community for a certain length of time. Nonetheless, in the narrations of Osman Fikret Topallı (Usta and Çulfaz, 2017), this perception evolved in due course, and the park turned into a center where many intellectuals convened and talked about current affairs.



Figure 8,9. End of the 19th century; Kapu Mosque (O. Öztürk Archive), Community Garden and its door (Işık and Dervişoğlu, 2011)

1902-1911. Building of Men's and Women's Prisons

Until the end of the 19th century, lodges, military posts, jerry-built structures or office basements were used as prisons in a vast majority of Ottoman Empire provinces. However configurations made on crime law as an effect of modernization increased the spatial need for prisons

(Sunay, 2018). Ancient photographs and verbal stories of the city prove that the structure that was erected right beside the mansion after the construction date of the Government House and replicating identical traits to the prisons in the specific age, belonged to the female prison (Figure 10). In the same vein as evidenced by the ancient photographs and verbal stories of the city structure, having a rectangular massed, framed window, a spectacular gate, which was erected right opposite the Government House and belonged to the Male Prison (Figure 11). Nonetheless, as seen in Giresun, prisons have always been a symbol for the central sanction power of the governor appointed from the central state and for an extensive amount of years, have become indispensable elements of spatial context by tightening a functional union with the city's Government House.

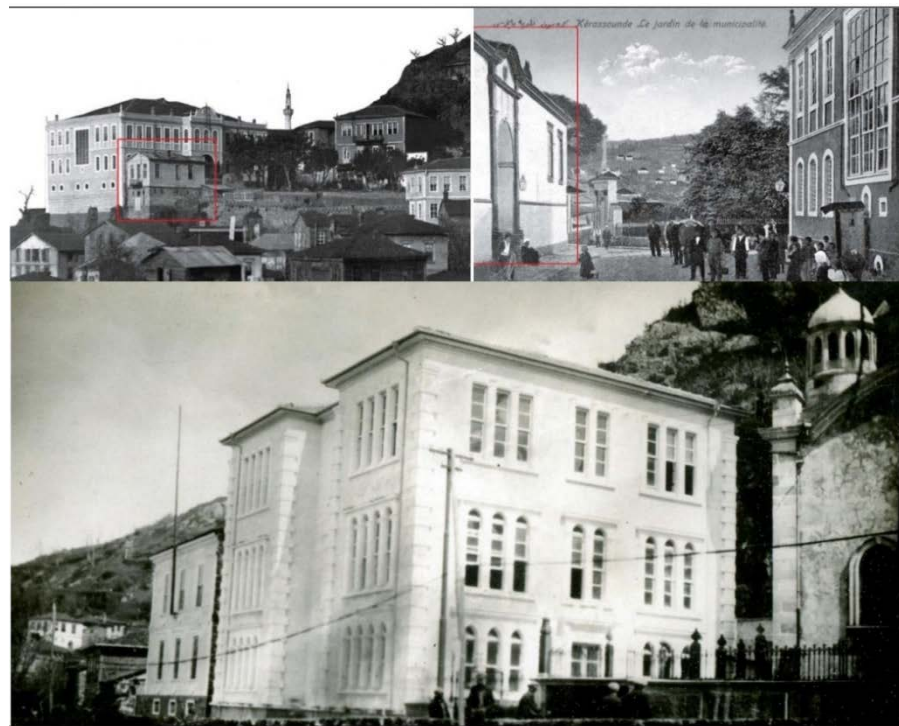


Figure 10,11,12. End of the 19th century; female prison, male prison and the Special Provincial Administration (Işık, Dervişoğlu, 2011)

1902-1911. Construction of Provincial Private Administration

There is no conclusive data on the construction of the Giresun Special Provincial Administration which came to life as an effect of the administrative changes implemented in the provincial towns after the 1864 Province Code of Practice. Yet, photograph archives evidence that the building was constructed following the completion of the Community Garden. The Special Provincial Administration on the main axle that passes in front of the Government House and enables the city's connection with the east was positioned as one of the components of the Administrative Center (Figure 12). In respect to both building material and architectural traits, the structure bears the general architectural trends of the period. These construction works that started with the Government House and ended with Special Provincial Administration

elevated both the local and central public quality of the region. While a few structures were positioned in a figure to surround the square, some others were situated in a linear axle connected with the square. The unity they had empowered the authority of the center and also gave impetus to the housing structuring in its vicinity. Nevertheless, the housing structures were essentially modeled on a residence with a garden and targeted people with a high income-level.

Radical Modernization: Early Years of the Republic (onset of the 20th century): Past Times of the Giresun Government House and Administrative Center

Upon the proclamation of the Republic, further steps were taken to rehabilitate the physical conditions in the war-stricken Anatolian cities, and add to the urban space the kind of architectural structures that could meet the functional necessities of the novel administrative organization envisaged by the Age of the Republic. Such spatial transformation and construction works that were partially transferred from the Ottoman Era to the Age of the Republic manifested an even more radical approach within the axis of Republican ideology. During this process, there was need for novel structures that could meet the demands born out of administrative and social changes emergent in Giresun, which had recently gained city status. Here, novel practices also took place. In that case, through Giresun, one can witness the radical modernization practices which transformed the Anatolian cities in the first years of the Republic.

A replicate of the master plans that were prepared in the 1930s to ensure a planned growth for Anatolian cities was also concocted for Giresun. These plans that differed from each other due to the unique local and topographic traits of the cities possess the same outline in principle. Yet, the Giresun master plan, a.k.a. 1933 plan (Anonymous, 1933) lacked any conclusive decisions that directed the urban growth axis, except for the micro interventions that could contribute to the growth of urban space. On the other hand, in the time interval from 1923 to 1937, the Giresun municipality that employed pier revenues to fund municipalism works experienced resource shortages after transferring the pier to Denizbank; therefore, the construction work almost came to a halt (Kabacaoğlu and Dervişoğlu, 2019). Thus, in the time period between 1937-1946, it can be claimed that the city had failed to have a holistic modernization experience, but still a number of actions such as opening orderly roads, squares, wide green zones, city lightening, and forming a regular transportation system were achieved. After 1946, the enlarging of the capacity of the pier and retransferring the revenues to the municipality accelerated the construction work in the city. Several public buildings were erected in the city to serve different functions. In the 1950s, the improvement in economic indicators started a phase when architectural structures that would meet the emergent functions of the new organization and derived their creative powers from the conceptual

depth offered by modernization, were articulated into the urban space. This city which, until the 1960s, experienced an insignificant population growth and used current housing stock went into a rapid growth process after this date. Factory sites were disjoined from the urban space, and the Micro Industry Site was built, the Forestry Management was built, and the novel housing sites were opened in Gemilerçekeği and Teyyaredüzü, and significant decisions were taken to stop squatting in the vicinity of Fiskobirlik. In 1976, a model of the Seka-Kağıt factories built within the scope of the first five-year development plan was constructed in the city. In 1979, when Fiskobirlik became a business engaged in industrial production and the Entegre campus which was then built, played a role in urban growth.

Thus, urban growth that had been limited to the north-south axle, now moved towards the east-west axle paralleled to the shore. In other words, it moved towards the Seka-Fiskobirlik connection. In that case, a slow-paced growth monitored until the 1950s, gave impetus to the building of a port and highway, which directed both the physical and economic growth of the city. During this process, when the new public buildings, which identified the urban silhouette, were articulated into urban space, the Administrative Center was integrated with a central business facility that reached to the port and the highway. Nevertheless, in this process, despite the shift of axis in the growth trend of the city as well as radical functional changes and demolishment seen in the entailed structures, the Administrative Center preserved its bureaucratic and management center identity through which the unity of the surrounding structures could be validated (Figure 13).

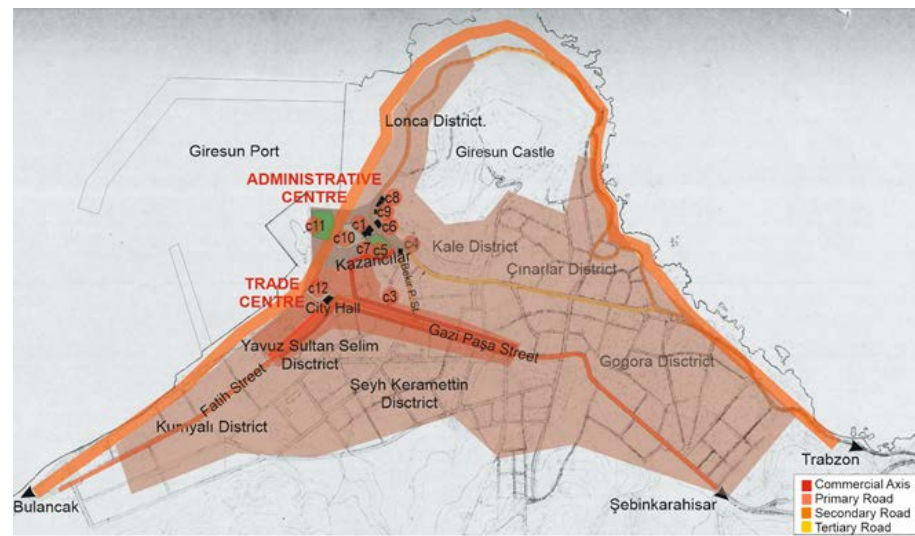


Figure 13. The onset of the 20th century: Administrative Center and urban space (Prepared by the authors)

In this process, Government House was used as the Governorship Building; thus, continuing its power and influence at the Administrative Center (Figure 14). In this building, very limited renovation work was conducted in the sense of architecture, and any generic change was avoided. The most noticeable intervention on the structure can be

observed in its tughra and epitaph sign. It is suggested that in these interventions, the 1927-dated law⁷, played a role in removing the tughra and praises that were symbolic marks of the political rule in the Ottoman Era and in the dyeing of epitaphs. Gazi Street on the other hand, continued its growth by attempts aiming not to cause a drastic change in the macroform of the city, but rather attempting to renovate the already-existing work. By opening secondary streets such as Fatih Street, and Bekir Pasha towards Gazi Street, a central business facility in which trade operations took place, empowered its identity. In Gazi Street, the most generic restoration took place in parallel with the increased number of urban traffic in the 1960s (Işık Newspaper, 1960) and as of the last quarter of 19th century, Gazi Street was opened to vehicle traffic. Hence, as of 1923, a linear connection that the city gradually built on the north-south axle became much more powerful, and accessibility to different points in the city rose. Such practices that turned a community garden into one of the attraction points of the inner-city pedestrian movement, also supported the definition of a park as one component of modern public life. It is attested that during these practices, the Community Garden gate that was in the center of the roadway was pulled one meter backwards and moved into its current position (Yeşilgiresun Newspaper, 1930). Local newspapers narrated these practices in the period as; 'The Blooming Garden' (Yeşilgiresun Newspaper, 19 June 1930). Still, these modernization practices performed in the Government House, focused Administrative Center, signed off the Male Prison and Female Prison due to spatial shortage in the region. Initially, the Male Prison was moved to the Metamorphosis Church. Later, the Female Prison that was almost positioned adjacent to the Government House was demolished; except for the basement floor to be used as an achieve room in the future.

⁷ For detailed information see (Umar, 1981).



Figure 14. 1930s, Government House and damaged tughra (Mehmet Fatsa Archive)

1930. Construction of Taşbaşı Park

Taşbaşı Park built by the seashore in the İskelebaşı location in the south of the Government House was a manifestation of this approach in Giresun (Figure 15). In this park, situated in an above-sea level, spatial organization manifested a preference for geometric forms. Access to the park was possible through the stairs in the symmetrical axle of the 10th Year Monument. Via this space, it became a frequent point of visit in the city for many years. Yet, after the construction of the 10th Year Monument and Republican Square, the site where Taşbaşı Park was also present, became an open public site that symbolized the ideology of the Republic; hence, empowering its semantic existence also. The evolution of the visual association formed with Government House into a functional connection through the Kazancılar Descent, contributed to the unity formed with the Administrative Center. However, transiting the highway from the shoreline in the 1950s reduced Taşbaşı Park's connection with the Administrative Center, the Republican Square and the City Hall to the rank of a visual perception only.

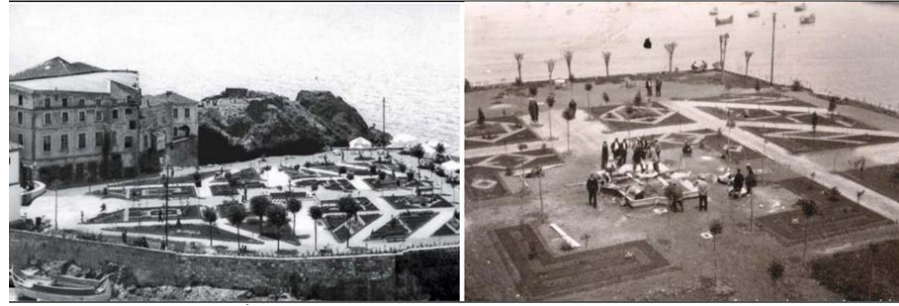


Figure 15. 1930s, The building of Taşbaşı Park (H. Menteseoğlu Archive)

1933. Construction of the Republican Square and 10th Year Monument

As a symbol of Republican ideology in urban space, this monument was constructed in 1933 right before the Government House, and in topographic criteria, it was built in its bottom elevation. In its age, this monument empowered the Administrative Center function of the region. Naming the site before the 10th Year Monument as the Republican Square, it was vital it be organized in a way to perform official ceremonies and celebrations. That was because the location of the Proclamation of Republic celebrations was moved from the Government Square to the Republican Square; thus, the community identity of this place heightened. Although this was not an open urban site determined by its surrounding structures and depicted within the framework of geometrical rules, it still had a square identity by means of its functional meaning, position, and scale (Figure 16).



Figure 16. 1930s, Republican Celebrations in Government Square and the Opening Ceremony of the Monument of the Republic (Kabacaoğlu Archive)

1949. Construction of Giresun City Hall and 1960. Restoration of the Square

Giresun City Hall was erected in place of the former city hall demolished after damage in 1939 from the Erzincan earthquake (Anonymous, 1973) and conducted organizations that used the site before the structure and identity of the square, could elevate the city-center character of the region. As a result of this change, the usage density in the Government House focused Administrative Center went down, and in the modernization perception, a change of perception towards a Municipality-Square focused axle took place (Figure 17). With the spatial plan and mass formation the building had, it became one of the most noticeable models of the modern architecture perspective in the period. Located at the focus point of the city center in the very first years it was built, the structure connected the Republican Square where official ceremonies were held on Osman Ağa Street. In 1969, with an aim to remove the worn-out and soulless structures that confined the Giresun City Hall and its front site, confiscation work commenced in the parcel between the City Hall-Hacı Miktad Mosque (Yeşilgiresun, 5 Sept. 1969). Such practices that would highlight the City Hall in the city silhouette, also restricted the growth of the Administrative Center; hence, opened the road for the construction work that would culminate in a loss of value for the Administrative Center.

Figure 17. 1950s, City Hall and 1960s, Municipality Square (Kabacaoğlu Archive)



1954. Port and 1959. Construction of the highway

After building an extensive and equipped port, the opening of the Black Sea coastal road to service was among the practices that increased the rate of urban growth within this period (Bekdemir, 2015). The highway opening limited the connection between the city and the sea, but by erecting the port, there was a noticeable speed in the overseas trade expansion of the city. It can be argued that the building of the highway and the port, severed the physical tie between the Administrative Center-Taşbaşı Park and put limits on the growth of the Administrative Center. The roads passing through the Administrative Center began to be used as an inner-city road, which in effect significantly affected the density of usage in the region.

1960. Construction of the courthouse

In the 1960s, it was built right opposite the Government House in place of the Male Prison. With its wide eaves and rectangular mass expanding horizontally, it possessed a uniform and plain facade look. Its monotonous facade organization created by the windows that formed an orderly range, was disrupted by the cubic dent where the entrance was accentuated. In that sense, it displays a modern architectural system. In its construction, cut-stone andesite excavated from the Giresun Bıçakçı village was employed (İltar, 2014). In terms of modern architectural language, it had found existence through a different and novel expression within the generic fabric of the city; thereby, embodying the ideology of the Age of the Republic within the city. By erecting a Courthouse in place of the demolished Male Prison, a spatial unity between the administrative and judicial body was established.

1979. Organizing Kazancılar Descent

Searching for an alternative route to the ends of lessening the traffic load on Gazi Street gave rise to road expansion work in a way to encompass the Kazancılar Descent. However, its physical and spatial deficiencies and the demolition of many of its commercial structures while conducting construction work, changed the generic architectural character of the Kazancılar Descent. The stairs that had long been present in the traditional nature of the Descent were destructed in this period. The community Garden was shrunk in a spatial sense and the highway facade of the park was supported by walls. Such practices that opened the coast

connection of the Administrative Center to vehicle traffic, put limits on the existing pedestrian connection; thereby, diminishing the intensity of pedestrian movement in the Administrative Center.

Changes in the Modernization Perception (The End of the 20th century- 21st century): Current View of the Giresun Government House and Administrative Center

During the process from 1980 to the present date, some of the public buildings defining the Administrative Center have either been re-functioned or demolished and replaced with new structures. Among the primary reasons that Administrative Center lose its purposeful identity is changing the function of the structure used as the Governorship, the Courthouse Building, and the Special Provincial Administration; demolishing the Female Prison and the Telegraph Office Structures. Therefore, the current status of the Government House focused Administrative Center structures was analyzed through a holistic approach based on the function, location, and architectural traits of the said structures. From that point of view, in the 1980s and later, a determinant factor in the development of cities has been the opening of new housing sites. Alman Çeşmesi, Gemilerçekeği, Teyyaredüzü, and the subsequent Osmaniye and Eriklimanı are some of these settlement sites. In the aftermath of 1980 construction works in the city mainly focused on housing, and the needs unique to the city created a number of differences in the modernization perception. As a result of the increased diversity of the administrative units under the body of the Governorship, the Government House, which was utilized as the Governorship, also became insufficient in terms of a spatial context.

A project competition was organized for this building to be erected as the New Giresun Government House, and the winner of the project in the competition was the work prepared by Architect Semra Özcan Uygur. All of the units in the Administrative Center were transferred to the new building of which construction was completed in 2004, and the Government House was changed to the Karadeniz Technical University. In 2007, it used by the Giresun University Rectorate Building (Figure 18). This change signals the last step of the bureaucratic and administrative function of the Government House focused Administrative Center.

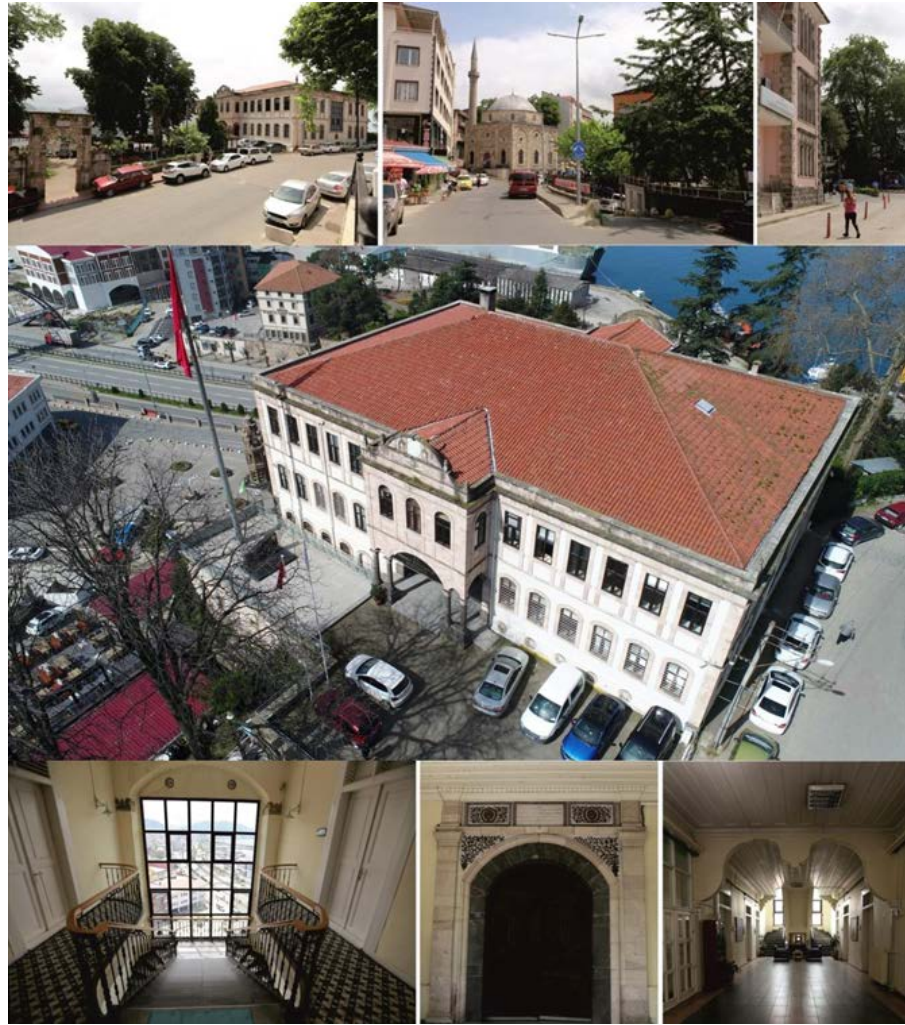


Figure 18. Present day, Government Square, Government House (Mehmet Fatsa Archive) and Interior Space (Prepared by the authors)

The Courthouse and Special Provincial Administration buildings that were moved to the new Government House in 2004 began to be used to meet different functions in this process. The Courthouse Building was, at the beginning, used as Dental Hospital and subsequently as the Supreme Election Board. The Special Provincial Administration on the other hand, started to function as a library in 2005 after the comprehensive renovation it went through, and in memory of the 125th anniversary of the birth date of Atatürk, it offered service as the 125. Anniversary Public Library (İltar, 2014). Currently, it offers service as the Provincial Directorate of Culture and Tourism. On the other hand, the Telegraph office structure located on the castle route was demolished during the castle-route expansion work in 2012, and its land was then used as a city observation point (Figure 19).

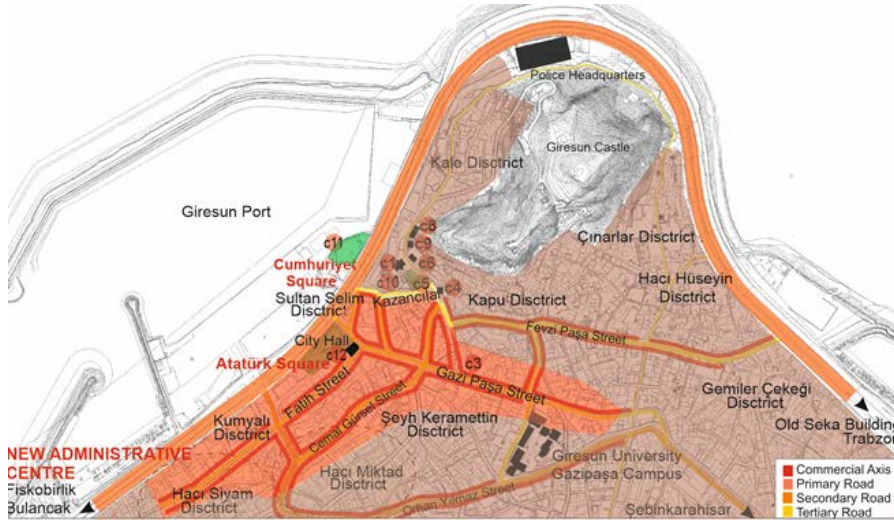


Figure 19. The end of the 20th century- 21st century: Current view of the Administrative Center and urban space (Authors' Archive)

One of the most significant public sites of the Administrative Center, the Community Garden, is among the popular meeting spots of the city even today. Despite the unattended landscape and fitting equipment, and unsupervised additions, it is one of the symbolic icons of city identity. Gazi Street on the other hand, by securing the Administrative Center's connection with the trade center from the Ottoman Era until the Age of Republic, managed to protect the function of the city as the main transportation axle for many years. Pedestrianization work conducted in 2013 heightened its density of usage as the main trade axle. As the religious structures defining the Administrative Center, the Kapu Mosque and Kale Mosque, managed to preserve their spatial and functional values after the restorations (2015) they had undergone (Figure 20).



Figure 20. Present day; Special Provincial Administration Building, Kapu Mosque, Kale Mosque, and Community Garden (Authors' Archive)

Built in the Age of the Republic, Giresun City Hall used to influence the growth of the Administrative Center has drawn attention as one of the few city halls in Anatolia by virtue of functioning in the same way since the Early Age of the Republic to the present date. In this process, the pedestrianization work conducted in its neighborhood and the organizing of the square empowered its symbolic meaning as a structure

representing local administration. The Republican Square and 10th year Monument continue their existence even today (Figure 21).



Figure 21. Present day; City Hall and Square, Republican Square and 10th Year Monument (Authors' Archive)

Nevertheless, new formations conducted in the square used as the Keşap Stop have recently created losses in the character and symbolic values of the square as a result of recent food-drink units, shopping departments, and a car-park added to the square. Although in the site, an increased usage density was observed, these additions also altered the visual character of the Administrative Center and created a significant amount of identity loss in this region.

FINDINGS

In this study the Administrative Center formed around the Government House and its vicinity has been presented as the most important agent of modernization in the province. Evaluating the construction, function change, or demolition of these buildings on the same plane will enable the traces of the modernization experience of the city from the Late Ottoman Era to today to be interpreted and compared. On the other hand, the interventions that were applied to these buildings both during the construction process and afterwards brought about a series of urban and architectural changes, and were effective in determining the city's administrative and commercial center or urban macroform. Within scope of this perspective, the findings of the study are presented through both the changes resulting from the construction processes, function changes or demolition of the Government House and the public buildings that define the administrative center established at the center of the Government House and the directive effect of this change in the trade center and improvement of the whole city.

Change of the Administrative Center and the Structures Defining the Administrative Center

The administrative center of the city on the Trabzon road in the Late Ottoman Era is located at the intersection point of the Kale and Lonca District, at a point that dominates the city, but has a limited spread due to the topographic characteristics of the city. In this sense, the structures constructed as the buildings of the administrative center are the Government House, Community Garden, Gazi Street, Telegraph Office, Women's and Men's Prison, Special Provincial Administration, Kapu

Mosque, and Kale Mosque. Some of these structures are located in a way of surrounding the government square and some are on linear axes connected to the square and are positioned with each other in a functional and spatial or visual relationality. In the first years of the Republic, use of the Government House as the Governor's Office, the partial demolition of the Telegraph Office, the complete demolition of the Men's Prison, the continuing use of the Community Garden, Gazi Street, Kapu and Kale Mosque for construction purposes ensured the continuity of the administrative function of the administrative center. However, the construction of a new municipality building in place of the existing municipality building and the creation of a square in front of this building and the connection of this square with Taşbaşı Park, the Republican Square and the 10th Year Monument, which was built just below the Government House at the same time, directed the development of the administrative center towards the coast. It can be said that the construction of the highway and the harbor had a limiting effect on this development. In the 1980s and later, the Community Garden, Gazi Street, and the Kapu and Kale Mosque preserved their functions as the structures of the administrative center, and the Government House was transformed into the Rectorate Building, and the Private Provincial Administration into a library. The Telegraph Office and the Women's Prison were demolished (Figure 22).






























	LATE OTTOMAN ERA End Of 19th Century	EARLY YEARS OF THE REPUBLIC Onset of 20th Century	UP TO NOWADAYS: End of 20th Century-21st century	
Government House	 New Structures/1887	Replaced/Governorship/1923	Replaced/2004 University Building	 University Building
Telegraph Office	 New Structures/1887	Replaced/ House	Demolish/2012	 The Point of View
Gazi Paşa Street	 New Structures/1896	Preserved the Function	Replaced/2013	 Gazi Paşa Street
Kapu Mosque	 New Structures/1896	Preserved the Function	Replaced/2015	 Kapu Mosque
Community Garden	 New Structures/1902	Preserved the Function	Preserved the Function	 Community Garden
Male Prison	 New Structures	Demolish		
Female Prison	 New Structures	Demolished and Replaced	Demolished/2012	 Terrace
Special Provincial Adm.	 New Structures	Preserved the Function	Replaced/Library/2005 Provincial Dir.of Culture 2015	 Provincial Director of Culture
Kale Mosque	 New Structures/1911	Preserved the Function	Replaced/2015	 Kale Mosque
Taşbaşı Park		New Structures/1930	Preserved the Function	 Taşbaşı Park
Republic Sq. 10th Year Mn.		New Structures/1933	Preserved the Function	 Republic Sq. 10th Year Mn.
City Hall		New Structures/1949	Preserved the Function	 Republic Sq. Atatürk
Port Highway		New Structures/1954/1959	Preserved the Function	 Port Highway
Courthouse		New Structures/1960	Replaced/Dental Hospital 2004 Supreme Election Board 2018	 Supreme Election Board
Kazanclar Descent		Replaced/1979	Preserved the Function	 Kazanclar Descent

Figure 22. The process of building, function change, or demolition of the structures that define the administrative center (Prepared by the authors)

The use of the Government House as the Rectorate building during all these developments and the following period, caused the region to lose its administrative characteristics completely.

The Effect of Change of Administrative Center on Urban Space

In the late Ottoman period, the commercial center of the city was defined by the Kazancılar Slope, where traditional chamber relations were carried out, and Gazi Street as the new trade axis. Over time, the importance of Gazi Street increased with the commercial activity of the city and was supported by new buildings lined up with modern functions. The commercial center development was directed from the Kazancılar Slope to Gazi Street, which connects to the port and sea, and continued its development on the north-south axis (Figure 23). In the first years of the Republic, the Greek Mavriki Mihalaki mansion, which is located on the connection axis of Gazi Street with the sea, was used as the municipality building, strengthening the commercial effect of the street, which facilitates the access to commercial mobility around the port. The demolition of this building and the construction of a new and modern municipality building in its place and thus, added to the urban space after Taşbaşı Park, Cumhuriyet Square and the 10th Year Monument strengthened this effect. However, the construction of the harbor and the highway in the 1950s limited the strong influence of the commercial center on the north-south axis and new commercial areas began to emerge parallel to the coast. After the 1980s, and today, the parallel growth of the city on the east-west axis continues (Figure 24).

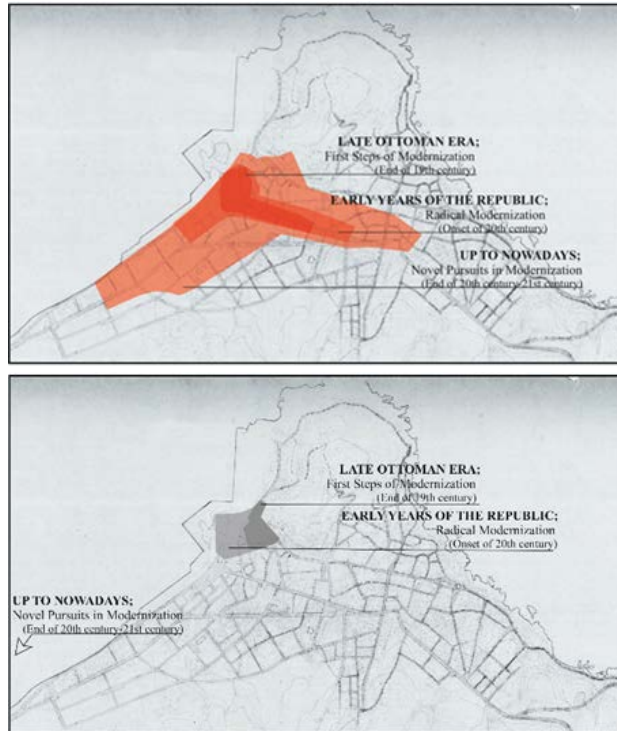


Figure 23, 24. The development direction of the commercial center and administrative center (Prepared by the authors)

The Effect of the Administrative Center on the General Development of the City

It can be stated that the dual order and topographical data created by the municipality-oriented commercial center and the government house-oriented administrative center in the Late Ottoman Era was decisive in the macroform of the city. While the city center generally develops on the route surrounding the Giresun Castle, the city was spatially limited to the Kumyalı District where the Armenian citizens live, Gogora and Lonca districts where the Greek citizens live, and Sheikh Kerametın District where the Muslim citizens live.

In the city, in the first years of the Republic, it is seen that the existing ones were evaluated rather than the construction of a new one. The main determinant of the urban macroform, which showed a parallel development with the commercial center, was the construction of the highway and the port at the end of the 1950s. After 1980, the city mostly spread on the east-west axis, but also on the north-south axis, continuing the tradition inherited from the Late Ottoman Era. The main determinant of the urban macroform in the 1980s was that Fiskobirlik and Seka, which increased their trade volume, and supported the urban space with various units. The construction of the Fiskobirlik-Seka industrial campuses and the housing need of the city, whose population increased with the migration of both workers in these industrial buildings and from the villages, caused the opening of new residential areas and the expansion of the city's borders. These developments required the formation of new streets such as Yenyol and Cemal Gürsel Street, and new districts such as Teyyaredüzü and Gemilerçekeği (Figure 25).

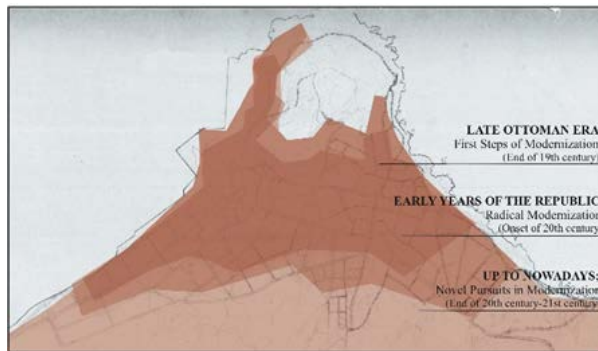


Figure 25. The urban macroform (Prepared by the authors)

CONCLUSION

This study discusses the modernization experience of one of Anatolia's coastal cities from past to present via other structures that define the city's Government House and Administrative Center. Apart from the general trends in Anatolia, it can be said that the local values of the city were determinant in defining this process. Although many of the buildings that define the administrative center of the late Ottoman Empire cannot exist with the same functions today, they are considered to be an important part of social order, although they have different semantic and functional expansions. The fact that they were built as parts

of a whole, changed their functions or were demolished, bears the traces of the modernization experience, changing spatial order, and life practices of the city at different times. In other words, they are similar in that they were built as the epitome of every building period from past to present. However, they differ in terms of the requirements of the period they were in.

Recently, the increase in commercial units in the food and beverage areas and the connection roads built at the bottom elevation of the Government House made the administrative center an extension of the commercial center. They may not have the semantic and spatial power of the time when they were constructed as modern city images, but they continue to be a part of urban life in their region with the new functions they are given. Every architectural structure that creates the city takes part in the collective memory of the city, not with their singular identity but with their plural identities formed by the unity of historical layers. However, it is necessary to be aware of the fact that changes are made in the urban identity while constructing, changing functions of and demolishing these structures, and decisions should be taken by plural statements that are rational, comprehensive, and that will preserve the historical continuity of the city beyond the arbitrary decisions taken by random and singular actors.

For this reason, it is necessary to be aware of what the Giresun Government House, which is on the verge of being used as a city museum, tells us, and what kind of story it has. The Giresun Government House is the symbol of the modernization and progress in both the spatial and life practices of the city from the Late Ottoman Era to the Early Republic and today. It is not known how it will continue its modernization story from now on, but despite all the functional and temporal changes it will go through, it will continue to watch over the city from the top view on the skirts of the castle. However, apart from the singular value of the Government House, the spatial value defined by the coexistence of the administrative center with other structures should not be ignored. For this reason, at the point of making decisions regarding buildings, both local Governments central institutions, and conservation boards should evaluate architectural structures as parts that do not define the whole to which they belong, and develop an understanding, policy and implementation system for this matter.

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ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions and organizations) during

the survey, in-depth interview, focus group interview, observation or experiment.

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Reading Administration Periods in Built Environment through the City of Lefke-Cyprus

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Abstract

Purpose

The urban settlement, space and architecture, which can transformation with the cultural politics and sanctions of the administration, are the most significant indicators of local culture and its continuity. With this approach, in this article, it is aimed to determine the effects of administrative periods on the built environment and so, to document the immovable cultural heritage.

Design/Methodology/Approach

The residential environment is the cultural values that carry the architectural codes of the local culture from the past to the present. In the formation of these values, cultural ve spatial policies of the administration together with universal developments such as architectural style, construction technologies and so on as well as geographical location, climate and lifestyle are determinant. In this spiral relationship, while the residential environment of the city of Lefke was examined by focusing on the city's own administration periods, cultural heritage values were questioned and documented. The basis of this approach is to define these values, the first stage of the heritage management system envisaged by the World Heritage Committee, with a "values-led approach" and thus obtain the statement of significance, that is, clues for management strategies.

Findings

The traditional and/or historical housing and its pattern have been included in three frameworks, "typological, chronological-regional, and thematic" determined for cultural heritage in 2000s. In all of these frameworks, the effects of time / space and the administration periods on social and spatial structure are emphasized. In this study, it is documented that the residential environment was shaped according to the administration periods and that its traditional housing and its pattern and some modernist buildings which convey the art deco architectural style are cultural heritage within these frames in the city of Lefke.

Research Limitations

The issues such as the sustainability or management process of cultural heritage values are externalities of this study.

Social/Practical Implications

This study should be helpful in defining the immovable cultural heritage according to current international policies, approaches and principles.

Originality/Value

The residential environment and traditional housing in the city of Lefke are described for the first time with this study.

Keywords: Administration effects, housing environment, cultural heritage, the city of Lefke, Cyprus.



INTRODUCTION

Culture consists of all kinds of values brought into existence by humans and the phenomena that are used to convey such values to the next generation and that manifest humanity's dominance over its natural and social environments. The built environment, as a subset of culture, is a production coherent with information and knowledge (Assmann, 2001:9). In other words, urban space is created, together with the culture and knowledge that is nested in memory through a series of constant contrasts, or interactions, generated spontaneously through internal dynamics and either voluntarily or involuntarily through external interferences. In these interactions within the time-space intersection, a sense of space is also generated, and architectural structures change accordingly through social metamorphism or the factors that generate it. Therefore, urban built environments are being regenerated by a time-dependent motion by constantly evolving and gaining different architectural features (Assmann & Czaplicka, 1995). Within this intertwined relationship, the architectural structure and particularly housing environment are an objective element of culture that constantly reminds the inhabitants of the roots of the communal life in the city and through which those in power manifest themselves and their power.

On the other hand, houses that constitute a large part of the urban built environment is both a material culture element, as the architectural structure that meets the need of shelter, and a non-material culture element, in its function of being home. The varying conceptual expansions of houses feed this reality. To elaborate, while the houses of the past preserves the collective memory through symbols and meanings (*representation spaces*), the houses of today is the space that is lived in for the longest time with the working function loaded into the home content through the means provided by communication technologies (*spatial practice*) (Assmann & Czaplicka, 1995; Lefebvre, 2007:18-24; Nora, 2006:3-9). Together with these variables, housing architecture, or local-vernacular architecture, is a phenomenon created by and/or changed as a consequence of adjacent, nested, or stacked contrasts and similarities of factors such as geography and climate, and variables such as economy and technology. Thus, the spatial metamorphosis that inevitably takes places with social dynamics (movement) and constantly differentiating and evaluating standards of judgment is not only between the house and the user. It is the primary tool of cultural continuity and existence with its quality of being a living archive and warehouse that keeps the memories of those now living and those that have lived in the city in the past. In this context, housing is the focal point of architecture because it conveys the sense of design (*space representations*) of its period in a clear, pure, and objective way (Lefebvre, 2012: 8-23; Nora, 2006:3-9). It also has a privileged position in architecture because it creates a place-date consciousness; it enables

inter-generation communication and connection, and it gives an identity to the city and a sense of belonging to the user and the citizen.

This conceptual content, which is defined briefly, is differentiated with the values specific to the place and it gains meaning of non-cultural material and cultural material with the housing architecture it forms. This article describes the traditional, historical housing pattern in the city of Lefke (hereafter 'Lefke') that proves and explains this phenomenon according to local characteristics and administrative periods. In this way, it is aimed to define and / or recognize and especially document the cultural heritage (hereafter 'CH') values of this pattern, which is in danger of extinction due to the need for housing and zoning rent pressure in recent years.

THEORETICAL FRAMEWORK

In protecting CH, heritage management system is envisaged within the innovative conceptual framework since the 21st century. The traditional housing and its pattern of Lefke are described taking into account this system.

Why Housing Environment and Buildings as Cultural Heritage?

The architecture allows for the manifestation of culture, art, ideology, beliefs and political power, by the way, its style, genre, mode, language, and symbolic elements, thus, architecture is recognized as an action that also serves a communicative function in addition to all the other basic. Namely, the architecture, which also has a visual narrative, forms a space via symbolizing and materializing abstract concepts. That is why any given architectural structure creates the message for the perceiver and/or user, so each structure has a metaphoric story which known to the inhabitants or witnessed but not understood by foreigners. This metaphoric meaning can be shared among society and, most of the time, it is arbitrary and culture specific. Given the poetic, idiom and rhetoric of space, this context is much more powerful in housing structures that include human memories, identity, belonging, privacy, roots and culture (Barthes, 1993:183). According to this, it can be said that residential structures define and convey spirit of place that is the tangible, immovable, non-material and the spiritual cultural values of place in the best and distinctive way. For this reason, every political power, which wants to establish dominance in the space to consolidate its power, has exhibited or imposed its own architectural culture in public buildings as well as in residential buildings. In the cities that witnessed this process, the architectural features of the residential buildings refer to different administrative periods. In this regard, these buildings must be protected as CH due to their indicators that convey historical and cultural accumulations, tangible (architectural structure and / or space, style, etc.) and intangible (memories, symbolic indicators, etc.) values.

In the 2000s, in UNESCO-initiated miscellaneous studies for CH, the loss of ordinary / extraordinary immovable CH caused by elitist and

privileged approaches and representation and registration deficiencies have been discussed. Firstly, in the Global Strategy Convention organized by UNESCO in 1998, it was suggested that CH be redefined with complementary approaches. As a result, International Council on Monuments and Site (ICOMOS) determined three frames; "typological, chronological-regional, and thematic" in 27th session of World Heritage Committee (hereafter 'WHC') in 2003 (UNESCO, 2003). According to this approach; traditional, historical housing and its pattern are evaluated within the category of "towns, town centers, villages, local-vernacular settlements and housing groups and / or traditionally built building types", which is one of the categories of the Typological Framework. It is proposed to define cultural regions with a historical timeline that takes into account their changes over time, which are thought to have evolved in different parts of the world with the Chronological-Regional Framework. Additionally, these heritage values are determined as expressions of creativity: monuments, groups of buildings, sites, which are one of the main themes in Thematic Framework (ICOMOS, 2004).

In these ongoing studies, the protection and / or sustainability of CH have been emphasized as one of the most effective ways to ensure world peace and local peace. Moreover, in the 21st century, natural and CH is considered not only as a source of wealth but as a source of political power and prestige. This has been of vital importance in the island of Cyprus, where ethnic divisions and political conflicts between Turkish Cypriots and Greek Cypriots have persisted since the last century. Nowadays, after the border gates dividing the island are opened, which dividing the island, the bi-communal Cypriots are increasingly interested in conservation of architectural structures beyond the border, especially own housing buildings where they lived in the past for finding solution to this conflict.

The traditional, historical dwelling in Lefke, this socio-cultural importance, is the subject of this study, as it has not yet been documented as CH although it exhibits the metaphoric meaning and transformation process of housing typology and the original settlement system. Lefke's ability to convey the sustainability of its residential architecture and multi-culture of the island multi-culture is another factor in its selection as an example.

Methodological Approach

In 21st century, 'the management cultural heritage system' (hereafter 'MCH') has been envisaged to manage a given property or group of properties in a way that protects their heritage values for augmentation social, economic and environmental benefits. MCH needs to be delivered in a holistic way that is also relevant to the conservation needs of CH as a whole and has regard to all its values. The aim of the first phase of this system is to facilitate the identification and support of the heritage values of each property or site (UNESCO, ICCROM, ICOMOS, IUCN, 2013).

The Operational Guidelines for the Implementation of the World Heritage Convention (hereafter 'OG') has recommended to define the attributes, boundaries and buffer zone of the immovable CH in this stage by "values-led approach" since 2000 (WHC, 2000). Attributes can be related to the physical, spatial or architectural structure, namely they are associated with or express CH, as well as to the process (s) that affect these qualities, such as the periods of administration and/or political context. The attributes of heritage structures, sites and areas are noted in ICOMOS Xi'an Declaration as the issues of form and design, materials and substance, function, traditions, techniques, location and other forms of intangible heritage, etc. (ICOMOS, 2005b). However, according to the asset-based WHC, the immovable CH must manifest themselves through their cultural values, so OG indicate a range of types of attributes which might convey. Defining the relevant features is also one of the main prerequisites for candidacy of World Heritage List candidacy. By this way, the setting of the attributes by values-led approach has the benefit of not concentrating on pattern alone but on a broader set of values that are important not only to a group of heritage experts but to a variety of legitimate stakeholders. Thus, these attributes will be the focus of protection and MCH actions, even institutional arrangements, and they will determine about values and the boundary of the properties of CH.

The key to the values-led approach is to prepare "statement of significance" and use it as the basis for setting conservation and the strategies of MCH. The focus of this statement is on the attributes of CH defined taking into account the registration criteria set by the WHC. This is the main reference for the future effective sustainability of CH (UNESCO, et al., 2013:21-29).

In this article, with this methodical approach, focusing on the attributes of the physical, spatial or architectural structure of the traditional residential pattern within the scope of the built environment, the effects of administration periods on the built environment are described through the example of Lefke. Another factor in determining this scope is that "the pattern of a property such as housing area is the outcome of the architectural culture and practice of the moment ". The history of a property or CH is not static because the administration of the moment can change built environment, for example, by adding new building or elements to, or removing existing these from, its pattern.

HOUSING ENVIRONMENT IN THE CITY OF LEFKE

Cyprus is the third biggest island (9.251 km²) in the Mediterranean following Sicily (25.710 km²) and Sardinia (24.090 km²). Due to its position at the northeastern corner of the Mediterranean and at the center of cultural and economical crossroads of Europe, Asia and Africa, it has a geostrategic and political significance for getting the East Mediterranean and Middle East under control.

Depending on its position, the island of Cyprus has been the most significant center of trade, military logistics, and copper production between east and west in the Eastern Mediterranean since the Neolithic period¹. For this reason, the island had been subjected to different civilizations, cultures, trade, religions, languages, military attacks and changing balances of power throughout history. Security became the most significant determining factor for the settlement tradition as the island was open to the attacks from the sea. While the coastal cities of the island where maritime trade was conducted, such as Girne (*Kyrenia*), Gazi Magusa (*Famagusta*), Baf were protected by castles or city walls, the settlements were established in the inner parts which could not be seen from the sea. While Lefke conformed to this settlement custom, today its inner part has been merged with the residential area of Gemikonağı² which was developed on the shore and was dependent on copper mining at the beginning of 20th century. In different historical periods, different settlement patterns and housing typologies have been created in the city depending on various factors. This differentiation can be explained by the morphology of the terrain and the preferences of political authority. Old city is a hillside settlement around the Lefke River in inland. Towards the 1960s, new neighborhoods were established for the employees of the Cyprus Copper Mine Company (CMC). From these neighborhoods, Karadağ was built for the employees of the Cyprus Copper Mines, near the mines outside the city and Gemikonağı was built behind the harbor where the copper mine was processed and exported. Although the architectural style of each neighborhood is clearly and distinctly different, various motifs of the past and the influence of the local environment can be traced.

HISTORICAL AND TRADITIONAL HOUSING OF THE CITY OF LEFKE

The lands and buildings conquered in the Ottoman Period were transformed into foundation property for financial and social institutions. Cypriots became acquainted with this system and/or the settlement and architectural culture of Ottoman in 1571. In this period, various monumental public buildings—mosques, lodgings, aqueducts, mills, etc.—were constructed by various foundations in Lefke³, as was done throughout island (Mallinson & Mallison, 2005:28). The existing buildings were brought into use by the new inhabitants, relatively small houses renovated and zaviye (*zawiyah*) and imaret (*alms houses*⁴) were used for the policy of expansionism.

After the occupation of the island by the Empire of Great Britain in 1878, British colonial lifestyle and architecture also became visible in Lefke. After the agreement between Turkey, Greece and England in 1959, the republic was declared in Cyprus on the sixteenth of August, 1960. Even though the period after 1960 has been defined as the modern period, the ongoing administrative fluctuations and seeking of consensus were reflected in the built environment.

¹ It is known that the first inhabitants of the island migrated from Anatolia, Syria and Palestine in 7000-6500 BC. There are traces of settlements from the Neolithic Period and previous periods on the island named Petra tou Limniti (Limnidi, Yesilirmak Rocky), an island with the length of 150 meters, the width of 30 meters, the height of 50 meters and located 100 meters away from shore near the settlement of Yesilirmak located at the west end of Güzelyurt Gulf within the current borders of Lefke; this indicates that Lefke and therefore the island of Cyprus have been a residential area from that period to the present date (Öngül % Saner, 2006; Şevketoğlu, 2006).

² Turkish means that Ship Moor, original name is Karavostasi-Xero or Ksero.

³ For detailed information, refer: Altan, M. H. (1986). *Documentary History of Turkish Cypriot Foundations (1571-1974)*, Lefkoşa: Journal of Cypriot Foundations Administration, pp.49-61; Bouleti, E. (2015). Early years of British Administration in Cyprus, *Journal of Muslims in Europe*, 1, 70-89; Dinç, G and Çelik, C. (2012). Cyprus Water Waqfs of the Ottoman Period (1571-1878), *Mediterranean Journal of Humanities*, 2, 37-59; Kara, A.Ç.C. (2011). The foundation management and control of Cyprus problem, *History Studies*, 3 (11), 161-17; Saydam, S. (2008). Foundation as a form of business, *GAU J.Soc & Appl. Sci.*, 4, 59-66.

⁴ Turkish mean is a pension or free temporary accommodation for the pilgrims, needy, patient and orphans in Anatolia.

The establishment of the Turkish Federated State of Cyprus following the 1974 Peace Operation and the Turkish Republic of Northern Cyprus (TRNC) in 1983 brought the changes to zoning and housing policies. Then Republic of Cyprus, which assumed as administration of the whole island became a full member of the European Union on behalf of the whole island in 2004. TRNC, which is not recognized as a member state, is within the European Union borders but it is outside the territory of the internal market (Adaoğlu, 2009; Bhutta, 2013; Borowiec, 2000: 92). These differences in administration have brought the changes to settlement and housing policies.

Thus, these dominant forces in administration have applied their architectural and urbanization traditions to Lefke together with their political objectives (Beratl, 2002:24-32). The differences of the settlement and residential architecture formed in this process can be easily read in the built environment (Figure1).

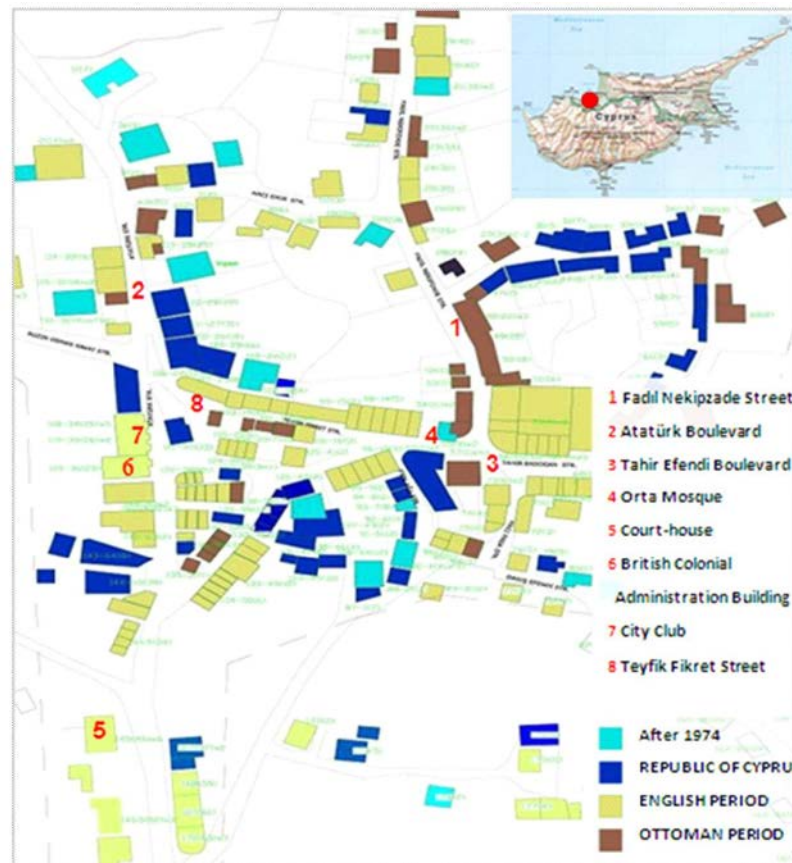


Figure 1. Settlement scheme of Lefke City Center and construction period of current buildings in the city of Lefke.

Source: This figure is based on the European University of Lefke, Department of Architecture, ARCH 546 Traditional Housing Course, in 2011 and on-site research and inspection conducted by the researcher in 2018.

Settlement Pattern

It is thought that after the capture of Cyprus by Egypt in 1500 BC, Erimi was relocated to the valley side of Lefke River which was closer to a copper mine. Other factors in the settlement of this city 5 km inland on the shore of Guzelyurt Gulf and 220 m elevation above sea level were security, closeness to the agricultural areas and water resources, and low temperature and humidity in the valley. Today, the inner part of this

settlement covers an area of approximately 8 km² between the Lefke River, called by its own name in the east, and Gemikonağı (*Maden* or *Xeros*) River which connects to the Lefke in the west. The center of settlement is located on the slopes of the Karadağ (*Mavrovouni*) and Karsiyaka Hills which open onto valleys that are extensions of the Toros Mountains. The residential buildings are bordered by Aplic (*Apliki*, *Kalabanayot*) in the south, Alcıdag in the east, Karsiyaka in the west, and a green area reaching to the valley in the east. Before the 1974 Peace Operation, Turks lived in the city center, Greeks (few in number) lived in Aplic and Yeşilirmak (*Dillirga*), and Armenians lived at the east end of the city (Çağanağa, 2014; 24-28). Statistical information was not obtained concerning the nationalities and ethnic origins of permanent and temporary inhabitants of the current city population which is 3009, according to the 2011 population census (TRNC, SPO, 2012).

Lefke is a slope settlement at the top elevation compared to the valley base, structured linearly in an area parallel to the valley, and low-pitched (approximately 10-15 %), open to the dominant winds in an east-west direction. In the transportation structure parallel to the slope, it has an organic settlement pattern with its narrow and folded streets convenient for Mediterranean climate conditions. The “protected street spaces” were created by high building templates relative to the street width in order to protect them from high temperature and ultraviolet lights and to create shade at a maximum level. Some cul-de-sacs where the roads perpendicular to the slope terminate add social and spatial privilege to the built environment as semi-private clearances (such as Mulla Yusuf Cul-de-Sac) (Figure 1).

In the Ottoman Period, Lefke was constituted from neighborhoods focused on the mosques around the city center in a manner coinciding with the pre-industrial structure of the city. Some single-storey stores located in the city center carry traces of the British Period along with this period (Figure 1).

Today, the detected folding, the ten niches, and the stone aqueduct, and arches, located in the city center, dated Ottoman Period (although in some places Roman Period foundations can be seen) are the symbols of Lefke. There are three aqueducts around Lefke, one aqueduct in a place close to Karadağ Mine, and many more aqueduct ruins hidden between the citrus gardens. The mosques mentioned, with their position in the city center and having the status of an immovable CH have been open for worship from the past to the present. The Yukarı (*Aya Yorgi Church*, *Piri Paşa* or *Minareli*) Mosque was constructed as church in 649 and transformed into mosque during Muslim attacks (649-963). The building was restored in 1572, three arched madrasas were added, and then it was opened for worship again under the name Sancaktar Pir Pasa. The Orta (*Merkez*, *Mahkeme*, *Ebu Bekir*, *Seyh Nazım*) Mosque⁵ is a single site building constructed by cut stones in 1904 (Hijri Year 1322) and divided into three areas. This mosque was the center of the settlement, namely the city center was built around this mosque in the

⁵ The mosques in the city are named according to their location in the city center. The mosque located in the center is called the Middle (*Orta*) Mosque, the mosque located in the north of the center is called Up (*Yukarı*) Mosque and the south is called Down (*Aşağı*) Mosque.

Ottoman period. This structural scheme has been applied to the new residential area as well as to the Gemikonağı (Figure 11). The date of the construction of the Aşağı Mosque is hazier; it was dated according to tombstone dated 1815 after it was taken under protection (Yıldız, 1995).

Even though the structure of city center was maintained in the British Period, new public buildings were constructed in the city center in accordance with the developments in technology, culture, education, medicine as a result of milestones such as the industrial revolution, the world wars, etc. In these buildings, the spatial representation was changed to British colonial architecture in which concrete and stone was used instead of stone-earth, adobe, and wooden construction materials (Mor & Çiftçi, 2007). The neo-classical elements are visible in the facade design, and the buildings as a whole are in a classical composition style. The opaline cross guardrails and gothic revivalist arches specific to the island were seen in other buildings in other cities belonging to same period. Along with these specifications, the power of authority was further emphasized in the size of the public buildings and in the solid wooden coating and ornaments in the city center and in the school and church buildings located at the endpoint of city.

Residential Buildings

While the architecture of residential buildings, which are the evidence of past multi-cultural life in the traditional-historical texture, becomes distinct in the Ottoman and British Periods, the houses dated after 1960 demonstrates an eclectic style with reference to these periods.

Residential architecture in Ottoman period

In Lefke, Turks from Anatolia were settled by Ottoman settlement policy in the tradition of island; then the first educational establishment was opened in 1580 following the opening of two madrasas in Lefkoşa (*Nicosia*) in 1573 and 1578 (Çağanağa, 2014:52). Construction of mansions, the indicators of significance and wealth of a city of that period, took place in the city center between the Yukarı Mosque and the Orta Mosque (Cömert & Hoşkara, 2013). But the mansions which have survived to date that have the characteristics of Ottoman residential architecture (such as Ahmet Pasha dated 1898, İzzet -Salih Suphi Pasha dated 1908, etc.) were constructed in the British Period. The plan of these two-storey and relatively bigger buildings indicate that from the exterior facade, the entrance floor is the service area while the upstairs is the living space. In terms of the design of rooms in the middle or around the internal sofa, the oriel room belonged to the head of family and the function of *selamlık* (reserved for men) was added to it. In a design having a rectangular form at the ratio of $\frac{1}{2}$ where there was an oriel, a buttress, a corbel, wide eaves; and in a facade order constituted with the windows in a dual-triple rhythmic order and with entrance doors at the vertical symmetric axis, the user was protected from

external climatic effects, and a visual richness was brought to the texture (Figure 2).



Figure 2. The mansion example in the Ottoman Period (Photograph by the Author, 2011)

Thanks to the leniency of the Ottoman administration, the elites and the “haves” lived in the type of houses described above, the ordinary citizens in a more modest scale housing, and even groups of different origins and beliefs maintained their lives side by side on the same street. In this type of settlement and living accommodations, different residential buildings with a pure or alternating style were constructed between the center and valley consecutively in Lefke in different periods. The construction technique in both houses typology is adobe or rock-fill materials in the plasterboard and half-timbered (built-up) system and masonry between the wooden bases (Figure 3).



Figure 3. The modest adobe house (Photograph by the Author, 2011)

In the buildings which were constructed with stone or concrete in the late period or in which facade linings were stone, there are examples where the spans (doors and windows) were amplified (Figure 4).



Figure 4. The modest house with stone facades (Photograph by the Author, 2011)

The residential buildings in which the floor spaces were 80-120 m² had a maximum of two-storeys (rarely with the addition of semi-basement floor) in a cubic or prismatic form due to the construction technology of the time. The modest-scaled residential buildings were constituted of spaces (rooms) modularly aligned at the right and left of multi-functional halls (as gateway, hall, or common living space) between the front entrance and the backyard door by grounding in the genuine plan of the island. This scheme may be read by the facade (Figure 3, 4). Thus, air circulation was achieved in the building by opening reciprocal doors which also allowed the flexibility for fulfilling likely functional changes – such as the expansion of the family. The reference to the cantilever in the entrance spaces (a local architectural aspect in the extension of the hall) were used for various functions (eating-drinking, daily housework, etc.) in accordance with the seasonal conditions. The entrance spaces that stood back, designed as semi-open/semi-closed in the housing-street interface, had the quality of a semi-public space (Gültekin, 2010). Further away from the downtown, the houses were connected to the street by the yard-garden. In these houses, the gardens are the long-term living spaces in the Mediterranean climate. Although it is in the process of demolishing and rebuilding the majority, it is also seen today with modest scale, one or two storey, adobe houses referring to rural architecture.

The elaborate wood and metalworking at the entrance doors of all houses adds aesthetic value to the building. There were construction dates and inverted crescents above the entrance doors of some houses belonging to Muslims. The window shutters, which were significant in terms of security and air conditioning, were genuine facade elements as were the floors because of their elaborate design and colors (Mediterranean Green and Blue).

Urban development and residential architecture in the British Period

On the island, the British administration transformed the settlement tradition and residential architecture with its new public and residential

buildings. But the architecture of period was not pure due to the facade layout and complicated structure of patterns differing from the past. The houses of the first British Period I (1878-1925) are defined by their size and eclectic architecture created with exaggerated façade also door and window orname. In these houses, facade elements such as the oriel and floor/window moldings with reference to Ottoman Period and local architectural elements such as recessed entrance spaces or vaulted spaces were distinct (Figure 5).



Figure 5. The house example in the British Period I (Photograph by the Author, 2011)

In the second British Colonial Period II (1925-1960), a plainer and smoother geometry was used. In this period, the blueprints and facade layouts were amended to incorporate the concrete carrier system. Balconies were preferred in the facade instead of oriels, verandas instead of cantilever-entrance spaces, iron engraved glazed doors instead of solid wood doors, and big windows at the ground floor level as well as upstairs (Figure 6). Changes were made in indoor spaces, and movable furniture started to take the place of cupboards and cedars, and baths had started to take the place of Ottoman Period bathing cubicles. Floorings such as wooden, marble, and tile-mosaic were used instead of plain floorings. At the end of this period, a solution to the residential problem caused by immigration to the city from the rural areas which was experienced throughout the island was attempted with social housing; thus, this housing typology appeared in Lefke for the first time.

Figure 6. The house example in the British Colonial Period II (Photograph by the Author, 2011)



Urban Development and the Changing Residential Architecture Because of the Establishment of the CMC

The copper mines located in Karadağ, Aplic and Skuryotissa (*Skouriotissa*) determined the destiny of settlements because of their strategic position. The residential problem arose because of economic migration through the establishment of the Cyprus Mine Corporation (CMC) in 1916 and the reopening of a copper mine operation in Lefke. The houses constructed in Gemikonağı in 1926 and Karadağ in 1928 became distinct from other houses available in that period because of the the architecture required by collective housing (a labor village) and public housing. With the CMC houses, the shoreward expansion of Lefke towards the uptown area accelerated. The corporate houses that continued to be constructed until 1970 were built in four types that varied depending on their users (Çağanağa, 2014:64-66).

The bachelor labor houses were constructed in a grid settlement pattern with 44 housing units in Karadağ and 40 housing units in Gemikonağı. These houses were 32-34 m² and consisted of adjacent rooms containing a resting space and a kitchen with a sink also used for bathing. The toilets and wells were placed in the yard which was common space for every two to three houses onto which the terrace at the front of every unit opened. The married labor houses were 138 units in Gemikonağı and 236 units in Karadağ. In these houses planned independent from each other at the size of 40-50 m², there were two bedrooms, kitchen, hall and terrace and toilets and wells belonging to every house in the yards (Çağanağa, 2014:110-119; Cömert & Hoşkara, 2013).

The foreman houses were a total of 27 units in total (14 units in Gemikonağı and 13 units in Karadağ). These detached houses consisted of two or three rooms including a kitchen arranged on both sides of a sofa connected to the veranda at the entrance. When there were

elevation differences in the indoor space of some houses, the connection between the rooms was achieved by one or two risers. In the backyard of every house, there was shed used as toilet and bath, an individual storehouse, and a well. These houses were constructed of masonry walls on stone foundations which were used only for these houses. The roofs which were wooden on the inside and covered with tile on the outside were convenient for the climate conditions (Figure 7).



Figure 7. The house example in the British Colonial Period II (Photograph by the Author, 2011)

The engineer's houses constituted of a living room, a hall, three bedrooms, a bathroom, a toilet, and a detached kitchen in a big garden. In the garden, there were also the servants' houses containing two or three rooms. A common garage and two tennis courts belonging to these houses were also a part of the plan. There were 17 units in Gemikonağı and 14 units in Karadağ (Figure 8) of these kinds of houses.

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Figure 8. A typical house in Karadağ (Photograph by the Author, 2011)

The majority of the approximately 6000 persons working in the copper mine and their families lived in the CMC houses and in the immediate vicinity: Yeşilyurt (*Pendaya*), Doğancı (*Elye*), Bağlıköy (*Ambeligu*), Yeşilirmak, and, in 1936, even Lefkoşa. The workers had different religions (Christian, Muslim, Jewish) and different nationalities (most of foreigners at the rate of two percent were British, American, Armenian, and Jewish) and the natives lived peacefully in a multi-cultural environment while speaking in three languages (Turkish, Greek, English) among themselves. Urban life was supported with schools and sport areas (two primary schools belonging to Greek and Turkish communities, a secondary school and sports club in built in 1949, a

secondary school built in 1962, Lefke Gazi High School in 1968, the Technical Turkish School in 1951, a dormitory in 1956, etc.), hospitals and social facilities (two cinemas, two night clubs, three pubs, five restaurants, two hotels, and one post office, all facilities that the families could enjoy together). The CMC houses (in Gemikonağı, Karadağ and Skuriotissa- Southern Cyprus) became residences where British soldiers who had fought in Northern Africa in 1942 and many Greeks who had escaped from German occupancy in World War II settled down (Çağanağa, 2014:198; Beyaz, et al., 2017; Lavender, 1962).

Modern period and new houses in Gemikonağı

Along with the establishment of The Republic Cyprus in 1960 and the decrease of copper reserves, the termination of CMC operations in the 1974 Peace Operation adversely affected urban development. But, Turkish immigrants coming from south after 1974 were able to sustain life in the CMC houses. Following this period, with the establishment of TRNC the desire for rationalism and standardization foreseen by modernism caused the style to change and evolve, incorporating local and traditional patterns and responding to economic problems in housing architecture.

The use of industrial products (glass, iron, concentrate, etc.) in the houses of the British Period created plainer and more functional designs. Even if the art-nouveau ornaments had become widespread in the facade arrangement and a sense of design in which the human scale is important in the 1960s, they had been forgotten along with the traces of the past in the 1990s. Primarily, the majestic, garish, solid wood doors of the Ottoman and British Periods were minimized and the industrial product glass surface door wings, knobs, handles, and iron guardrails which were safer, lighter and easier to use were preferred. The window sizes were also reduced but wooden shutters were not waived (Figure 9). The same characteristics were followed in the detached houses with a garden. The same features were followed in detached houses with gardens, and were surprising effect in 1980s.

Figure 9. The house example in modern period (Photograph by the Author, 2011)



The art-deco style houses shown in Figure 10 and the residential areas that began to be developed mainly on the coast of Gemikonağı and its immediate vicinity were for the residential needs of students, academics and other workers of The European University of Lefke with 1990s.



Figure 10. The art-deco style house on shore in Gemikonağı (Photograph by the Author, 2018)

Around 2010, the multi-storey (ground+five and seven) dormitories and apartments began to quickly increase around the university, contrary to the settlement pattern, topography, climate, and silhouette of city (Figure 11). It is also thought provoking that these buildings were constructed by demolishing the citrus gardens.



Figure 11. The new (modern) house in Gemikonağı (Photograph by the Author, 2018)

CONCLUSION AND RECOMMENDATIONS

In this article, the determinants of urban and residential development and architecture were examined in spatial dimension through Lefke from the Ottoman period to the present day. The importance of architectural codes recorded from spatial identity, content, meaning, time and collective memory from the city center of Lefke to Gemikonağı district was emphasized. In this approach, it has been comprehended that urban pattern and residential buildings, developed under the influence of a lots of factors such as geographical location, climatic conditions and different cultural, economic and political periods are components of urban identity and CH. Nevertheless, it can be said that political policies and/or forces are a stronger factor than these. It also should be taken into consideration the local values and factors that form the spirit place together with how political power use the architecture to exact own culture and power when defining the CH values of the historical urban pattern and architectural structures. Herewith, this

article has been attempting the methodological approach of reading the administration and culture changes through the built environment as well as documenting the immovable CH particularly to understand the architectural aspects of political periods over Lefke.

The island of Cyprus has witnessed the consequences of social tensions, power wars and ethnic divisions between Greek Cypriots and Turkish Cypriots in the political debates since the last century. Nowadays, the bi-communal Cypriots, who seeking resolution are increasingly interested in the conservation their cultural values particularly the residential buildings which the most prominent and tangible example of these values. Thus, the common awareness belonging of the local, cultural and economic values, particularly Lefke, have gained more significance than ever before in this environment. Consequently, the conservation of immovable CH, which is vital value not only for the local peace, but also for the global world peace, should be seen as a mission for the efforts of the architecture.

As a result, in urban planning and architecture, it is recommended to be considered that choice of place from outside the CH area and/or traditional, historical pattern for new housing areas provide an advantage for the sustainability of the cultural values. It also should be noted that the new houses that take into account the satisfaction of life are the new faces of a new century, as in Lefke.

CONFLICT OF INTEREST

No conflict of interest was declared by the author.

FINANCIAL DISCLOSURE

The author declared that this study has received no financial support.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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Resume

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The Evaluation of the Perceptibility and Accessibility: The Case of Gaziantep

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Abstract

Purpose

The study focuses on accessibility to green spaces. In this context, the study aims to determine the accessibility of green areas in metric and topological terms, and to examine and discuss their social and functional contributions.

Design/Methodology/Approach

The study was designed in 5 stages. In the first phase of the study, a convex area map was formed within the limit of accessibility based on the literature research. In the second phase, the axial map was created. In the third phase, the integration map was used to determine the visual perceptibility of the green areas within the study area. The Depthmap software was used in analysis and creation of the maps. In the fourth phase, all findings obtained are explained and discussed with detailed graphics and maps. In the last phase of the study, some suggestions regarding the study area and general spatial planning approach were developed in the light of scientific principles in order to ensure urban green areas' contribution to the city and residents

Findings

All analysis results were evaluated in a holistic manner and the spatial relationship between residential areas and green areas in the study area was found to be weak and the perception of green areas was moderate.

Research Limitations/Implications

Further studies should be conducted to evaluate the accessibility of several parks of different sizes with other various methods. In the study, accessibility values were obtained with the Space syntax method. These values can be compared to each other with other analysis methods.

Practical Implications

This analysis will enable issues such as park locations in city plans, their size, and intervals to be more professionally handled. Thus, living space conditions and indirectly cities will be improved. As a result, urban life quality will flourish.

Social Implications

Urban green spaces are important components of the city in that they contribute positively to urban residents in terms of environmental, social, economic etc. aspects. For this reason, it is extremely important for people to have easy access to parks for socialization purposes.

Originality/Value

It is considered that examining accessibility with the space syntax method, unlike other conventional methods, adds an important value to the study.

Keywords : Accessibility, perceptibility, space syntax, urban green space.

INTRODUCTION

Liveable cities are spaces which are accessible, usable, shared and integrated where all individuals and social groups freely and comfortably come together. Legible and accessible urban spaces for everyone are indispensable to participate in social life (Afacan, 2015). In many developing cities, unplanned and irregular settlements have led an increase in social and spatial inequality, resource consumption and environmental disruption (Leichenko & Solecki, 2008). In order to prevent this increase and to contribute to the solution of urban problems, it is very important to accurately understand and manage urban pattern created by bringing the streets, parcels, buildings, and the main physical components of the city together. The urban pattern occurs as a result of the different actors shaping the space at different scales, with different objectives, requirements and motivations (Ünlü, 2018). The main purpose behind this formation is to facilitate social life by creating interconnected holistic spaces.

As being among the most important places of social life, urban green areas are an important indicator of a quality life (Wright et al., 2012) and they are also considered as one of the most important elements of urban planning. Green areas in the cities are important areas for their role in reducing the negative effects of these problems and increasing the quality of urban life. In the urban context, green areas consist of parks, urban forests, natural reserves, green corridors, sports fields and other informal green areas (La Rosa & Privitera, 2013). These spaces provide significant benefits to urban residents, such as improving air quality, increasing urban environmental quality (Bolund ve Hunhammar, 1999; Fan et al., 2017), recreation and relaxation by contacting with nature, contributing positively to mental and physical health (Barrera et al., 2016). Considering urban green areas' benefits for urban residents, it is clearly understood that these areas are an important indicator for improving life quality and that the adequacy and accessibility of these areas are of great importance (Wright Wendel et al., 2012). Accessibility to public green spaces is one of the most discussed issues in sustainable urban planning, especially in environmental justice and public health (La Rosa, 2014). The main reason for this is the increased stress on the definition of the benefits of urban green areas today (Ward Thompson, 2011).

Accessibility is defined as the behaviour of people within structure of urban area from local to global (Mahdzar, 2008). Accessibility is the ease of access for moving towards a destination (Department of the Environment, 1994). Access to green areas is an important tool for improving equality and social justice within urban areas. Studies on green space accessibility are often based on metric measurements, ignoring topological measurement (Fan et al., 2017; Koohsari et al., 2018; La Rosa, 2014; Nicholls, 2001; Stessens, Khan, Huysmans, & Canters, 2017; Van Herzele & Wiedemann, 2003).). In this study, both

topological and metric measurements were used to determine the accessibility levels to green areas and to make comparisons between them. Topology is the connection pattern of a particular space. The topological measurement of an axle refers to the relationship of any axle in the system with all other axles. In other words, the topological distance for public open spaces calculates how many turns a person should take on the streets to reach any open space (Koohsari et al., 2015). People perceive urban spaces topologically and geometrically and act accordingly (Hillier & Iida, 2005). Topological features are more effective than metric features in formation of urban spaces such as streets, that is, in understanding their configuration (Penn, 2003). In other words, metric distances are not fully sufficient to explain accessibility (Koohsari et al., 2013). For example, two people located at the same metric distance to a public space, might be at a topologically different distance (Figure 1).

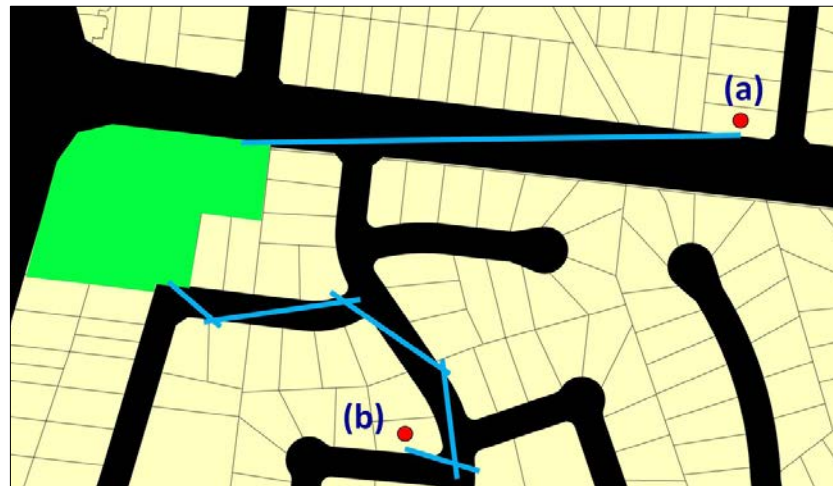


Figure 1. Metric distances are the same, topological distances are different (Koohsari et al., 2013)

Another important feature as important as access to urban green areas is the visual perceptibility and quality of green areas. Green areas encountered visually in complex city structure were proven by previous studies to have had a large positive impact on human soul and physical health (Sanesi et al., 2006; Ekkel & de Vries, 2017; Francis, 2010; Koohsari et al., 2018). In addition, it provides a positive contribution to human psychology by providing a balance between human and environment (Gül & Küçük, 2001). Above all, it provides residents an opportunity to observe the nature and natural beauties with their continuously changing appearance in different seasons and to integrate with nature (Önder & Polat, 2012). Therefore, the perceptibility of green areas in this complex structure is quite an important issue.

The Space Syntax method, developed by Bill Hillier and his team, has recently been widely used to understand the configuration of urban spaces and to determine the possible effects of these properties on human movements (B Hillier et al., 1993; Bill Hillier, 2001; Asami et al., 2001; Bill Hillier & Iida, 2005; Baran et al., 2008; Özbil et al., 2011;

Koohsari et al., 2013; Topçu, 2019). Space syntax analysis shows the potential accessibility and perceptibility (visibility) of streets and alleyways that form a street network (Hillier et al., 1993). The results of space syntax measurements are not only related to people's behavior but also to their perceptions in critical levels (Alalouch et al., 2009). Many studies have shown a strong correlation between integration value and usage (B Hillier et al., 1993; Bill Hillier & Iida, 2005; Özer & Kubat, 2007; Baran et al., 2008; Özbil et al., 2011). Thus, the green areas located on streets with high integrity value will have more perceptibility than the green areas on the streets with low integrity value.

Informed by the above-mentioned literature research, this study was carried out in the Istiklal Park and in its immediate vicinity in Şahinbey region, the central district of Gaziantep Metropolitan Municipality. In the study conducted at neighborhood level, an axial map was primarily created within the accessibility limits determined by the literature. Later, both metric and topological accessibility levels were determined and compared based on this map. In the last phase of the study, the perceptibility of the green area was evaluated.

METHODOLOGY

Research case

The study was conducted in Gaziantep city as the eighth most populous city in Turkey which slowly becomes a cosmopolitan city due to its high migration rates from Syria along with East and Southeastern regions. It dealt with the Istiklal Park and its vicinity in Istiklal Neighborhood located in Şahinbey, one of the central districts of the city (Figure 2). Previous studies have been called upon to determine the accessibility limits and size of the green area. Competence and accessibility standards for the green areas in different scales in the city have been specified in many studies (Altunkasa, 2004; Jia 2001 (Gupta, Roy, Luthra, Maithani, & Mahavir, 2016); Nicholls, 2001 (NRPA); Van Herzele & Wiedemann, 2003) (Table 1). For example, Altunkasa (2004) proposed an accessibility distance of 800m to neighborhood parks and area of 40 ha; Herzele and Wiedemann (2003) determined the accessibility at the same level as 400m and the area as 1 ha. The NRPA suggested an accessibility distance of 800 m with an area of 2.8-4.1 ha. This study utilized the accessibility standards (400 m) and green area and park size values (min. 1ha) as proposed in Herzele and Wiedemann (2003).

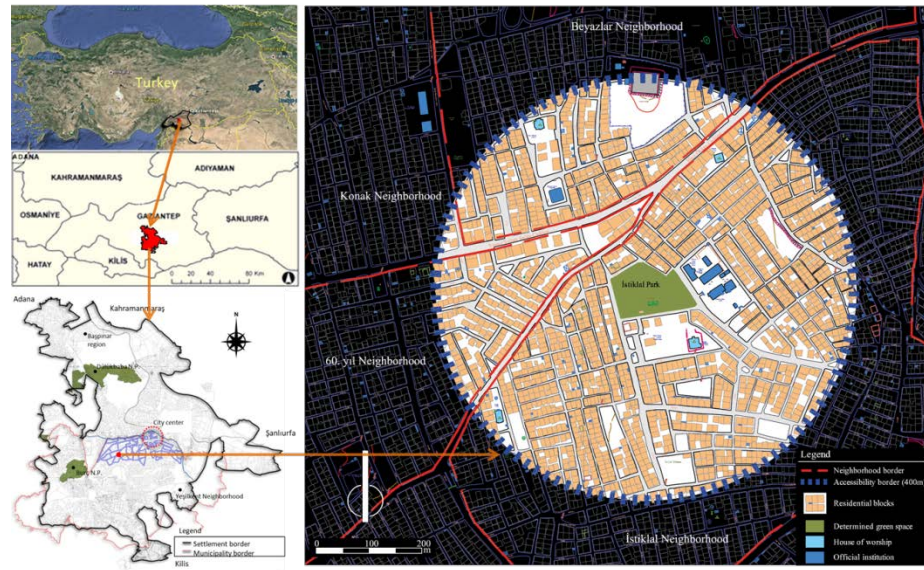


Figure 2. Geographical location of the study area

Table 1. Competence and accessibility measures for urban green areas

Green Field Type	Altunkasa (2004)	Herzele and Wiedemann (2003)	NRPA	Jia (2001)
	Size (ha)	Size (ha)	Size (ha)	Size (ha)
	Accessibility (m)	Accessibility (m)	Accessibility (m)	Accessibility (m)
Children's playground	30	-	0,4-2	0.02-0.04
	400	-	400	300-400
Play ground	80	-		
	400	-		
Neighborhood Park	40	1	2,8-4,1	2-8
	800	400	800	400-800
Quarter Park	160	5-10	8,1-20,3	8-40
	800	800	800-4000	800-5000
City Park	1000	10-30	-	> 40
	1200	1600	-	-
Metropole park	5000	60	-	-
	2400	3200	-	-
Regional Park	40000	-	-	>100
	-	-	-	
City Forest	-	Small settlement> 200 Big city> 300	-	
	-	5000	-	

The study consists of data collection, analysis-synthesis and evaluation phases based on the studies and the standards set forth previously. At the data collection stage, the current map of Şahinbey at the scale of 1/1000, 1/5000 scale zoning plan, 2018 address based census (TÜİK, 2018) and field surveys were used as main tools. In addition, Depthmap 10, Autocad 2016 and Arcgis 10.2 software were used to determine accessibility and perceptibility levels.

Space syntax

Space syntax is a set of techniques that help define the properties of spatial configuration and reveal their connection with social life in urban morphological research. This method uses graphic theory to describe and digitize the extent to which spaces are accessible, readable and perceptible by analyzing different scales from residential to urban. Likewise, the method is a useful tool for comparing spatial features. It helps us to understand how urban space is related to social, economic, and cognitive factors and their effects on shaping the space (Hillier et al., 2007; Nes & Yamu, 2017). This method offers a range of analytical techniques to explore the link between city form and city function and to represent and analyse urban topology (Lebendiger & Lerman, 2019). This technique is an important tool for the evaluation and development of design policies and urban planning. The main parameter of this theoretical framework is to define the relationship between urban space and social forces by revealing the effect of spatial order on social life (Fladd, 2017; Hillier & Hanson, 1984). The Space syntax method, which was developed by Hillier and his team in the 1980s at College London to understand and analyse the complexity of spatial arrangement in urban morphology and its impact on urban life, explains the objectivity of space according to two assumptions. The first is that space is closely linked to human activity, and the second is that space has a fundamentally configurative structure (Hillier & Hanson, 1984; Hanson & Hillier, 1987; Hillier, 2008).

Space syntax tries to explain the relative importance of each street segment by two variables that are basically based on graph theory: Integration and Choice. It is the value used to understand the movement in the integration system and the depths of the areas that make up the system relative to each other (Mustafa & Rafeeq, 2019). This value is of great importance in defining how both vehicle and pedestrian movements function within the urban system and in understanding how often public spaces are used (Hillier, 2007). Choice, The extent to which a space can be a part of the shortest route to a destination (Hillier et al., 1987). Axial maps, which enable us to perform basic analyses of the space syntax method such as integration and choice, consist of lines defining the longest lines of view and movement that represent the structure of the public space (Karimi, 2012). Each line provides a link between two nodes. These connections consist of the longest and shortest lines representing the structure of the public space. The map formed by these lines representing the urban space is called an axial map (Figure 3). This axis map is a representation of the spatial model to be analysed. The advantage of this model is that it creates a spatial network model that defines how the network is perceived by people (visibility) and how it passes through (movement). The degree to which a public space is centrally located can affect many features such as its accessibility and perceptibility. The relationship between how the space

is structured and how it is used by people reveals an analysis that can be directly used and interpreted in the urban design process (Karimi, 2012).

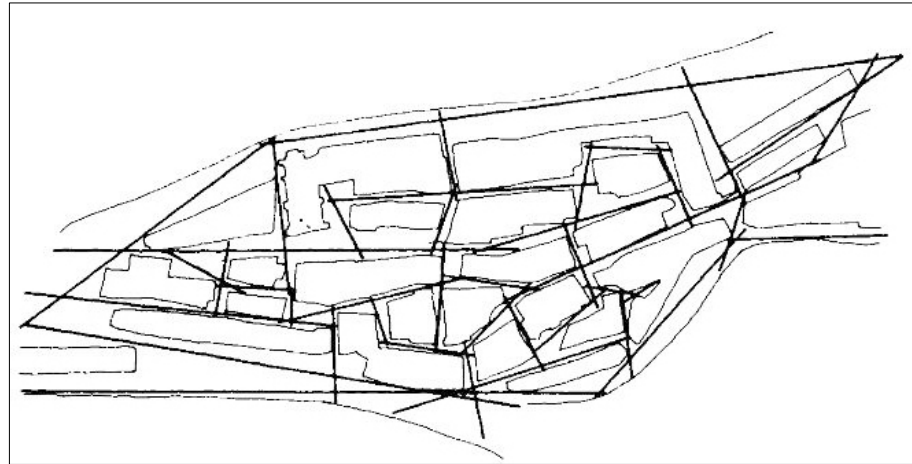


Figure 3. Axial Map (Hillier & Hanson, 1984)

Space syntax analysis is based on measuring different characteristics of a street network reflecting the relative accessibility of various places in a city or region (Lebendiger & Lerman, 2019). Space syntax can measure the spatial properties of a built environment in three ways: Metric distance, topological distance and geometric distance. Metric centrality refers to the central location in meters from one area to other areas. Topological centrality deals with the spatial configuration of the street and road network in terms of the number of direction changes. Geometric distance refers to the number of turns from one segment to the other. The more fragmented a street network is, the weaker the spatial features. This is about the degree of accessibility in terms of the least change of direction. Geometric centrality deals with changes in angular directions as you move from one place to another (Nes & Yamu, 2017; Mohamed & Stanek, 2020). These measurement types can be calculated in different radii from each street segment and again the radius can be defined as either the shortest, least-turn, or least-angle roads (Hillier & Lida, 2005). The space syntax method can be applied at a wide variety of scales and levels in research on environments built at different levels, from residential to urban.

Analytical Framework

The study focuses on determining the level of accessibility and perceptibility at metric and topological levels within the Istiklal park and its accessibility limits. The methodology of the study consists of two basic stages, the first one determining and comparing topological and metric accessibility analyzes and the second one determining the perceptibility level.

Firstly, a convex area map was created by using the 2015 zoning plan as a basis within accessibility limits. By doing necessary markings on this map, an axle map as the basis of the spatial syntax method was obtained. In the next stage, an integration map used in topological and metric

accessibility analysis and in determining perceptibility levels was developed by using the Depthmap 10 software.

Integration maps are important to describe how both vehicle and pedestrian movements work within the urban system, and to understand how often public spaces are used (Hillier, 2007). Areas with a high degree of integration attract more movement while areas with a low integration value attract less movement. This is an indication that the places with high integration value in the system are well connected, easily accessible and perceptible. Therefore, the perceptibility of the green areas located on the streets with high integrity value will be more than the green areas on the streets with low integrity value.

These analyzes were classified with the help of Arcgis 10.2 software and their percentages were calculated. Accessibility levels were divided into five sub-group as very low, low, medium, high and very high. In addition, the total number of population within the study area is given in table 2. Total population was calculated by determining the population density per m² of 4 neighborhoods and by multiplying it with square meters in the study area.

Table 2. Total population within the accessibility limits

Neighborhood Name	Total Population of Neighborhoods (person)	Area within accessibility limits (ha)	Total Area of the Neighborhoods (ha)	Population within accessibility limits (person)
60. Yıl	14.766	5,53	46,88	1.736
Beyazlar	9.808	9,21	74,01	1.221
İstiklal	22.162	33,26	62,84	11.730
Konak	19.425	0,13	61,74	41
Total	66.161	49,09	245,47	14.727

RESULTS AND DISCUSSIONS

Metric Accessibility

When the map showing the metric level of accessibility is examined (Figure 4), it is seen that there is a circular expansion towards the regions where the accessibility level is very low. The region with the highest accessibility level in the green area is the regions closest to the green area, while the regions with the lowest levels are the most remote. According to the table showing the rates of metric accessibility levels, the regions with the highest rates have the lowest access areas with 33.55% (approximately 4941 people) and the areas with the lowest rates have the highest rates with 5.24% (approximately 771 people) (Table 3).

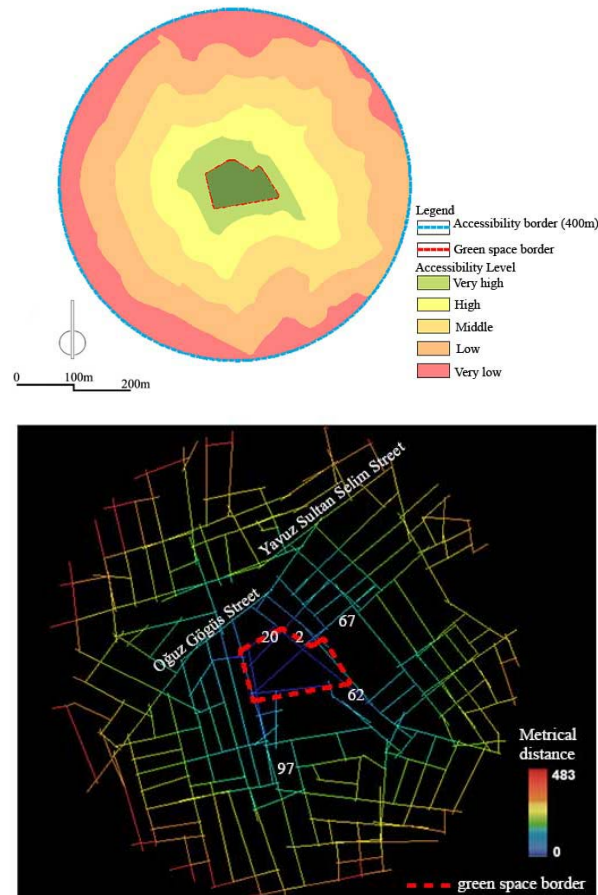


Figure 4. Metric aspects of accessibility (areal distribution on the top, metric assessment on the bottom)

Table 3. Distribution of metric accessibility levels

Accessibility Level	Area (ha)	Ratio (%)	Population (person)
Very high	2,57	5,24	771
High	7,52	15,32	2.256
Middle	11,89	24,22	3.567
Low	16,47	33,55	4.941
Very low	10,64	21,67	3.192
Total	49,09	100,00	14.727

In general, when the accessibility of the green field in metric terms is evaluated, it has been determined that the areas with very high and high accessibility are 20.56% of the total area (approximately 3027 people), and the regions with low and very low accessibility are approximately 55.22% of the area (approximately 8133 people).

Topological Accessibility

When the map of topological accessibility levels were examined (Figure 5), it was observed that the areas where accessibility to the green area is very good are 2, 20, 62 and 67 streets and areas around 97th Street. Areas with very low access levels were observed in the northern part of the green areas. The main reason why the accessibility levels of the regions in the southern part of the study area is higher than the regions in the northern part is that 20th and 97th streets around the park are not stretched to the north of the area and that Yavuz Sultan Selim Street

is blocking the access to green areas. The topological accessibility levels, their distribution and population numbers are given in Table 4.

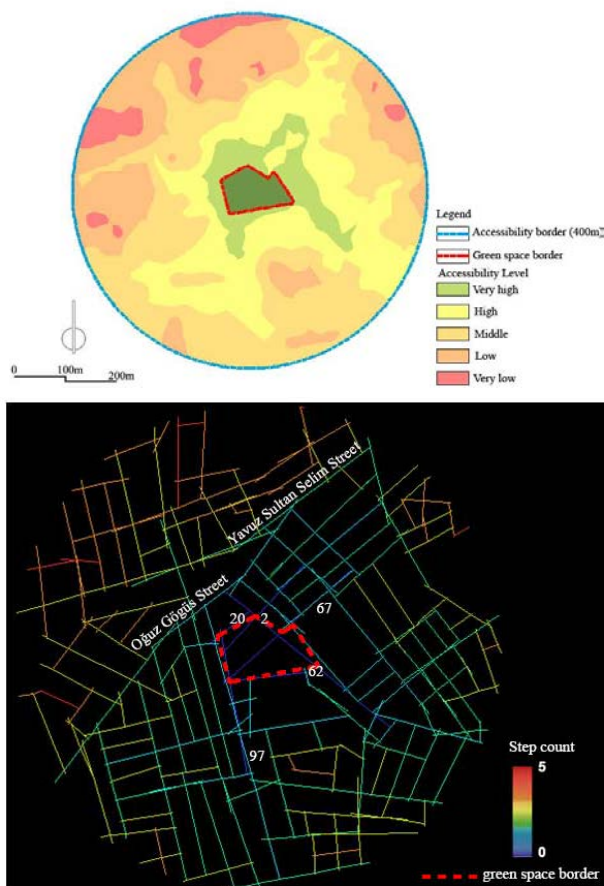


Figure 5. Topological accessibility levels (areal distribution on the top, topological depth on the bottom)

Table 4. Topological distribution of accessibility levels

Accessibility Level	Area (ha)	Ratio (%)	Population (person)
Very high	3,64	7,41	1,092
High	12,96	26,40	3,888
Middle	18,22	37,12	5,466
Low	12,17	24,79	3,651
Very low	2,1	4,28	645
Total	49,09	100,00	14,727

According to Table 3, 37.12 of those living within the accessibility limit had moderate access to green areas while 4.28% had very low level.

A general evaluation of topological accessibility shows that the areas with very high and high accessibility have a total area of 33.81% (approximately 4980 people), and regions with low and very low accessibility are approximately 29.07% of the area (approximately 4296 people).

Comparison of Metric and Topological Accessibility Levels

A comparison was made between both assessment results in order to determine the difference between metric and topological accessibility levels. This comparison shows that the areas with very high levels of

accessibility are close to each other and the main difference is in areas with very low accessibility. The very low regions with a ratio of 4.38% in topological measurement have a ratio of 21.67% in metric measurements. This is due to the fact that the accessibility is shaped according to the distance from the green area in metric measurement. However, it is about the number of times that a person changes his direction to reach the green area rather than distance in topological measurement. In addition, in metrical accessibility assessments, the value of green areas with very high green space access is 5,24% of the total area while it is 7.41% in topological assessments. The reason for these low levels could be under-developed hierarchical road network in the study area. When the correlation graph of both measurements was examined (Figure 6), a moderate relationship was found between the measurements. The reason for this is that the areas with very high accessibility areas in both metric and topological aspects are close to each other.

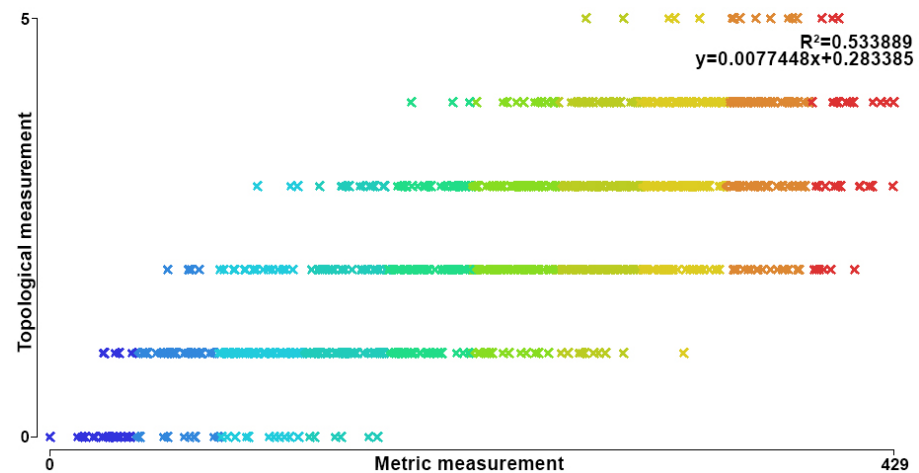


Figure 6. Graph of correlation between topological and metric measurement

In general, there is a difference of approximately 13% (1953 people) between regions with high accessibility values in both scales while this difference is approximately 26% (3837 people) between regions with low accessibility. Considering the regions with medium level accessibility between these two measurements, regions with moderate accessibility in metric measurement comprise approximately 24.22% of the total area (approximately 3567 people) while this ratio is approximately 37.12% (approximately 5466 people) on a topological scale.

Determining the perceptibility Levels

The integration map was used to determine perceptibility level of the green area. The integration map is an important indicator in describing the intensity of use in the system and in describing the frequency of space use. Therefore, the spaces located on the streets with high integration values will have high perceptibility. When the integration map constructed within the accessibility limit (Figure 7) was examined,

the area where M. Oğuz Göğüs Street and Yavuz Sultan Selim Street intersect had the highest integration value with 2.12 while 12th Street and its close surroundings had the lowest value with 0.98. The 20th, 2nd, 62nd and 92nd streets that limit the green area had integration values of 1.65, 1.88, 1.71, 2.08 respectively with an average of 1.81.

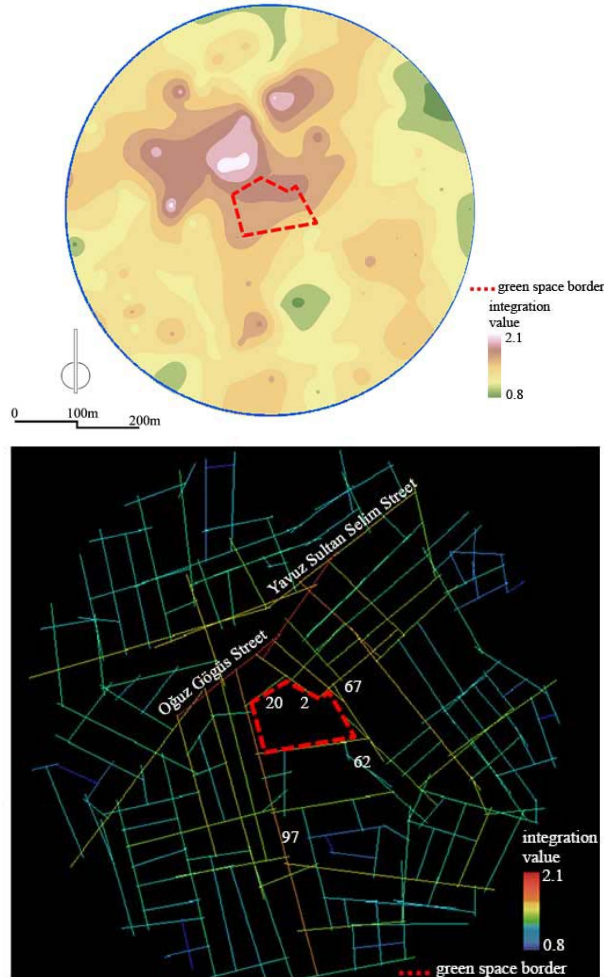


Figure 7. Perceptibility map (areal distribution on the top, integrity map on the bottom)

The fact that the selected green area is close to the region with a high value of integrity and the above average value of the street limiting this area requires a high perceptibility for this area. But the hierarchical road network within the study area is not sufficiently developed and the differences in the integration values between the regions constituting this area reduces the perceptibility of green areas.

The most important feature that differentiates this research from other studies is the use of spatial method in determining the accessibility and perceptibility levels. Many studies have evaluated green areas in terms of quality, size and possibilities (Daniels et al., 2018; de la Barrera et al., 2016; Ekkel & de Vries, 2017; Fan et al., 2017; Van Herzele & Wiedemann, 2003). In this study, the green areas were evaluated only in terms of their accessibility and perceptibility. While many studies conducted to determine accessibility values of green areas considered the metric distance (Ekkel & de Vries, 2017; Fan et al., 2017; Gupta et al.,

2016; La Rosa, 2014; Wright Wendel et al., 2012; Xiao et al., 2017), this study also takes the topological distance into account along with the metric distance. As the study reveals, the angular relationship of the streets plays a role in people's orientation towards the built environment. This is empirically supported by Conroy Dalton's research, which shows that angles affect people's choice of route at road intersections. He concluded that people tend to maintain linearity with minimal angular deviation in selected routes (Dalton, 2001). In addition, the method used in the study, its application for urban areas of different scales such as playgrounds, district, city and district parks, and comparison of urban areas of the same or different scales in terms of accessibility may be the subject of different studies.

CONCLUSION

This study evaluates the perceptibility and accessibility levels of Istiklal Park located in the Istiklal neighbourhood. The accessibility level was determined with topological and metric assessments and the results were compared. The integration map was utilized to determine the perceptibility level. As a result of this study, it was determined that;

- There is a moderate relationship between metric measurement and topological measurement,
- the spatial relationships between housing and green space are weak,
- the perceptibility and accessibility of the selected green area is moderate.

This study moves from the hypothesis that the green areas are an important shared space for residents at the neighborhood level. Accordingly, space syntax method was utilized in order to provide more specific suggestions to the question of how neighborhoods should be designed in this direction. It is suggested that the green areas on the streets with high integrity value will have higher accessibility and perceptibility levels. But the streets with high integrity value will be overloaded with heavy traffic. Traffic is one of the most common obstacles in accessibility (Sallis et al., 2012). It should be kept in mind that especially busy streets will negatively affect the access of older people, children and disadvantaged groups. Therefore, it is very important to ensure that all segments of the society have access to these areas safely in the connection with the environment and to design multifunctional and safely accessible spaces in order to benefit from these areas. The results obtained from this study might contribute to the determination of the design-planning principles, sustainability of social areas, accessibility to urban areas and use of green spaces at the neighbourhood level. In addition, the study contributes to an understanding of how cities are built as an effect of social activities in spatial terms and how urban space functions as a driving force in its relation to social activities.

The necessity of creating a liveable environment is to arrange the technical, social and cultural equipment-infrastructure needed by population and equal access to open and green spaces. Planners have a key role in providing communities with more equal access to healthier living environments. Urban and regional planners, landscape architects and implementers have a great responsibility in ensuring the ecological, psychological and economic benefits that urban green spaces provide to citizens. Urban planning is a complex and multidisciplinary process that requires more and more actors to communicate. Higher data requirements, different methods, accepted assumptions and limitations should be carefully considered by planners in planning processes. Indicators assessing accessibility to green spaces represent very useful tools for planners and provide solid foundations to local governments for developing policies that can create more livable and healthy urban environments.

CONFLICT OF INTEREST

There isn't any conflict of interest.

FINANCIAL DISCLOSURE

The authors declared that this study has received no financial support.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions and organizations) during the survey, in-depth interview, focus group interview, observation or experiment.

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Rethinking the Heritage Value from Different Perspectives, Case Study in Yogyakarta

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Abstract

Purpose

Today heritage is of strategic importance not only because of its historical value, but also due to the capacity to sustain traditional philosophy. A problem arose in association with the over-commercialisation of heritage that led to a question of how the citizens react to the problem and the emerging values. The purpose of this study is to explore the relationship between heritage conservation practices conducted by the government and local people.

Design/Methodology/Approach

This study used qualitative analysis to investigate official documents and newspapers. In-depth interviews were used to elaborate citizens' perception about heritage values.

Findings

There were connection and disconnection between the implementation of heritage conservation policy and citizens' opinions about conservation practices. The connection should be maintained to anticipate the change of meanings and overcome problems stemmed from heritage tourism and the uncontrolled urban development.

Research Limitations/Implications

This study bridged a possibility of evaluating the impact of urban development on heritage value by assessing perspectives from different social actors. It was evidenced that the official and unofficial values of heritage are differently recognised. However, this study had a limitation in terms of the social group involved in interviews. The analytical framework of this research needs to be developed incorporating quantitative analysis with a survey of particular population in Yogyakarta. This kind of study is essential to discovering how the population reacts to urban development and heritage sites.

Social/Practical Implications

The government should not dominate the practice of heritage conservation. It is essential to maintain the cultural authenticity of heritage by involving general public in monitoring urban development surrounding heritage sites.

Originality/Value

This study provides a framework for integrating different perspectives to better recognise and manage heritage sites and the overall urban landscape. This framework can be used as a foundation for evaluating heritage impact relating to societal changes and the dynamics of urban development.

Keywords: *Heritage conservation, official heritage, unofficial heritage, traditional philosophy, Yogyakarta*

INTRODUCTION

Yogyakarta is the capital of Daerah Istimewa Yogyakarta Province, located in the Central Java region, Indonesia. This city is a tourist destination not only for its heritage, but also for providing access to two other World Heritage sites—Borobudur and Prambanan temples. The significance of Yogyakarta urban centre is evidenced as it is included in the tentative lists of world heritage sites for its traditional urban form (UNESCO, 2017).

The current approach of Heritage Conservation (HC) demonstrates the domination of national and local governments by using heritage regulations and policies. Indonesia heritage law concerns the physicality of historical objects, i.e., statues, temples, buildings, and sites (The Republic of Indonesia, 2010). In addition, the law also mandates the use of heritage in economy and education reflecting the implementation of sustainable development principles in HC as suggested by World Heritage Committee (2015). The local government implements sustainable development agenda to encourage local initiatives in strengthening local economy and public well-being through HC.

Despite some advantages of HC, the implementation of this policy is problematic due to two reasons. Firstly, the current HC regulation generally recognises buildings and monuments created before 1945, the year of Indonesia's Proclamation of Independence, which represent the memory of war. In fact, heritage in Yogyakarta is not only associated with collective memories about the war, but also with the tradition of local people. Secondly, the use of heritage as economic resource tends to give negative implications for HC. The over-commercialism of heritage in the tourism industry leads to a shift from cultural value to commercial value (Shepherd, 2002). Loulanski (2006) conforms this idea by suggesting that heritage tourism has a 'parasitical effect' on cultural value. This problem has been evidenced in Yogyakarta. Mass media have reported facts and public opinions regarding this issue. The demolition of historic buildings and the growth of modern commercial facilities have become a threat to the existence of heritage (Kusumaputra, 2010). As a result, the image of Yogyakarta as a historic city tends to be replaced by commercialism (Alexander, 2015). These issues motivated this study to understand how the current HC approach can fit into conservation practice in Yogyakarta and connect with the everyday values of local citizens. Hence, this study contributed to expanding the understanding of this complexity that can be used to develop a better HC policy as well as the knowledge of HC as an academic discourse in Indonesia.

This study aimed at exploring the connection between HC practices on the basis of paradigms held by government and local people. The practice of HC was investigated using the notions of 'official heritage' and 'unofficial heritage' referring to the two variations of conservation practices and heritage values (Harrison, 2013). The first one corresponds to the practice of HC on the basis of professional practices

and governmental policy. The second one represents HC practices and paradigm of ordinary people through the everyday meanings of heritage perceived by general public as suggested by Byrne (2008) and Malpas (2008).

THEORETICAL RATIONALE

The discourse of official and unofficial heritage begins with the concept of value. Fredheim and Khalaf (2016) argue that the value or 'significance' is the main reason for heritage conservation. The international conventions of heritage have contributed to the notion of heritage value (ICOMOS, 2004). Athens Charter in 1931 suggests aesthetic and history as principal values of a monument. In addition, Nara Document introduces the concept of 'authenticity' and 'cultural context' as the principal aspects pertaining to heritage value. This document allows every society to perform different ways in considering heritage value or authenticity relevant to their societal context.

The value of heritage is not an absolute idea. In contrast, it is an assemblage of various value categories from different social agents. Regarding this, Fredheim and Khalaf (2016) suggest the values interpreted by 'experts' and 'non experts', which have different perspectives in recognising heritage values and determining appropriate conservation actions. As asserted by Tweed and Sutherland (2007), the recognition of heritage can be performed through institutional process and everyday appropriation of general public. This situation reflects the presence of two perspectives in the recognition of heritage values, which involves formal institutions as the representative of 'official heritage' and general public as the representative of 'unofficial heritage'.

The official heritage represents the approach of formal agencies, i.e. the government, to recognising heritage value and determining appropriate HC policy. World Heritage Committee (2015) encourages the states parties to comply with sustainable development principles in HC. Unlike the official heritage, the unofficial heritage resembles a bottom-up approach. Heritage, particularly the one located in urban space, has a constant interaction with observers. The interaction between observer and the environment allows human perception to evoke meanings (Juodinyte-Kuznetsova, 2011). As a part of physical site, heritage can encourage observers to experience the place and capture particular meanings, emotions or thoughts (Jokilehto, 2006). In this regard, the heritage value is produced from people's personal and shared experiences in a historic area (Schorch, 2014). Some scholars have incorporated public's perceptions in heritage study. Su (2018) investigated the notion of heritage authenticity from the perspective of locals in Lijiang, China. The locals tended to internalise the value of intangible heritage through their daily social and cultural practices. Herliana, Hanan, and Kusuma (2019) supported Su's finding by asserting that local people had particular attachment to their settlement

shaped by daily experiences associating with history, social life and tradition. This phenomenon was typical in Yogyakarta traditional settlement. In the case of urban landscape, Najd et al. (2015) demonstrated the approach of 'visual preference' in evaluating heritage social value. Their study made a foundation for connecting heritage value to physical situation around the heritage sites. These studies suggest that the non-expert's perspective should not be ignored in assessing heritage value. Through this way, heritage can be deeply rooted in the society.

A problem exists when there is no good connection between the two approaches. The study found that the official value of heritage is perceived differently by general public due to the over-developed environment. This situation reflects failures to control urban development around the heritage sites and recognise the everyday meanings of heritage. There is not enough knowledge about how the official and unofficial approaches of HC can collaborate in constructing heritage value. Nevertheless, the study in Yogyakarta demonstrates a potential for integrating the two approaches.

YOGYAKARTA AS A MIX OF TRADITIONAL AND COLONIAL CITY

The city of Yogyakarta is located in the southern area of Central Java (see Figure 1). The currently reigning Sultan administrates the province as a governor. The province is comprised of four regencies (Bantul, Gunungkidul, Sleman, and Kulon Progo) and one municipality (Yogyakarta). The municipality, as the setting of this study, corresponds to the past embryo and the current urban area of the province.



Figure 1. The location of Yogyakarta on Indonesia map. (Google Maps, 2019)

The city of Yogyakarta was founded in 1755 as the result of Gayanti treaty initiated by the colonial authority (Luthfi et al., 2014). The first Sultan of Yogyakarta designed the city centre using two traditional philosophies: *Philosophical Axis* and *Catur sagatra* (Suryanto et al., 2015), as depicted in Figure 2. Traditional philosophy is the wisdom of local culture deeply rooted in the society. The traditional urban fabrics were built in the 1700s. Handinoto (2015) suggests that the first Sultan

of Yogyakarta was the primary initiator of the city design. The descriptions of Yogyakarta traditional urban fabrics are as follows.

- Philosophical axis takes the form of an axis connecting the South Ocean to the north and Mount Merapi to the South. This philosophy has three elements, i.e., *Panggung Krapyak* monument, *Kraton* (the palace complex), and *Tugu* monument. *Panggung Krapyak* monument is a 10-metre tall building with a shape similar to a truncated pyramid. *Tugu* monument is a column of 15 metres tall located at a junction to the north of *Kraton* complex. Suryanto et al. (2015) suggest that the Philosophical Axis symbolises a philosophy called *Sangkan Paraning Dumadi* connoting a wisdom about God as the origin of life. People should always remember that anything comes from God and will return to God.
- *Catursagatra* is a compound comprising four contiguous urban objects, i.e., *Kraton*, the *Alun-Alun Lor* or the northern square, the Great Mosque, and Beringharjo market. This traditional philosophy connotes a harmony between micro and macro cosmoses manifested through the quality of leadership, spirituality, economy, and culture as the integral elements of Society. Karsono and Wahid (2008) argue that *Kraton*, Alun-Alun square, Mosque, and Beringharjo market symbolise the social aspect of human life through which a human becomes a member of society and develops wisdom.

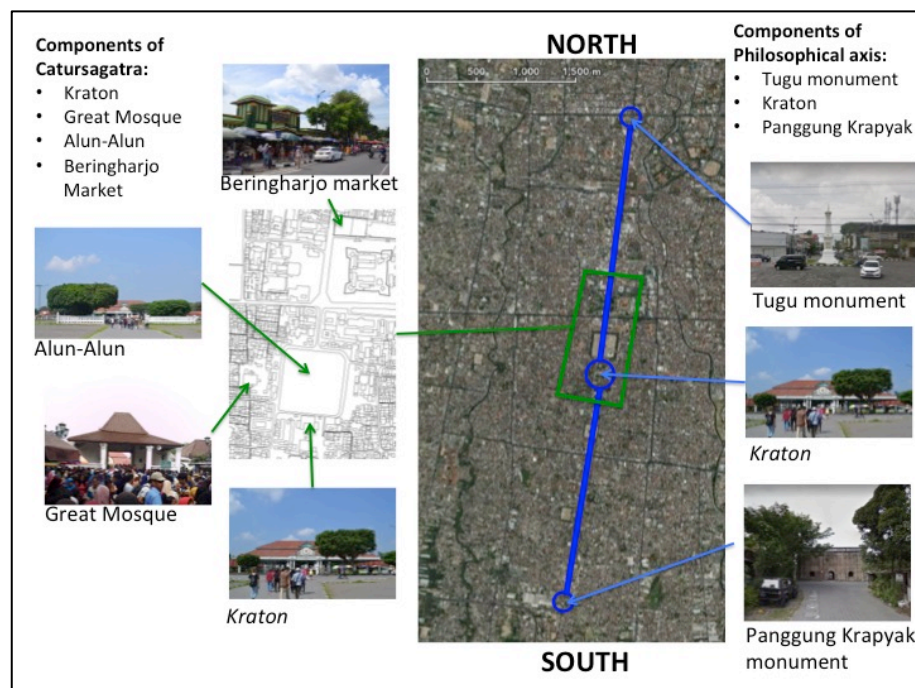


Figure 2. The map shows the locations of traditional urban fabrics representing *Catursagatra* and Philosophical Axis. (Google Maps, 2020 and photograph by the first author, 2019).

In addition to its traditional philosophy, Yogyakarta also has colonial structures reflecting the influence of Dutch colonisation. The colonials had settled in the Central Java territory since the foundation of Yogyakarta in 1755. The Dutch government strengthened its political power by constructing Vredenburg fort to the north of *Kraton* in 1765

and Assistant Residence office in 1824 (Karsono & Wahid, 2008). Yunus (1991) suggests that in the early 20th century, Dutch authority fostered economic development and industrialisation by constructing railway stations, markets, and offices. In the field of architecture, the Dutch architects introduced particular style called *Indische* architecture to Yogyakarta. This architectural style was a combination of European and Indonesian building traditions (Veenendaal & Knaap, 2015).

METHODOLOGY

The location of this study was the urban centre of Yogyakarta, which constitutes a historic area surrounding the philosophical axis and Caturragata. The area was also the centre of governmental and economic businesses in the city. This study used multiple data sources to maintain data credibility as suggested by Ritchie, Lewis, Nicholls, & Ormston (2013). The triangulation was achieved by adding data sources in terms of documents and research participants. The analyses were made in three stages:

- First stage: the analysis of official heritage. This analysis focused on conservation practices regulated by the Yogyakarta government and debates about issues regarding the practices of HC. Regarding this, the study reviewed institutional documents of Indonesia's legislations on heritage conservation, research articles, and international conventions of HC. These sources provided insight into the official heritage. In addition, newspapers and online media were also used to elaborate social context about the topic (Brennen, 2012; Corbetta, 2003).
- Second stage: the analysis of unofficial heritage. The study was grounded in the notion that people's perceptions are essential to understand the cultural value of heritage as suggested by Vecco (2010). The everyday meaning of heritage was captured from general publics' opinion about the historical-cultural values of heritage and particularly traditional thought or spirituality associated with traditional urban fabrics. The interviews involved 24 general public participants recruited from public spaces surrounding the heritage sites.
- Last stage. In this phase, findings from the previous steps were compared to reveal the connection and disconnection between official and unofficial heritage.

THE REPRESENTATION OF OFFICIAL HERITAGE

The development of official approach of HC can be traced back in the colonial period. Heritage protection has been recognised in Indonesia since the colonial period. In 1885, the colonial government inaugurated an organisation working on historical and archaeological research in Indonesia (Tanudirjo, 2003). After Indonesia gained its independence in 1945, the country still used the colonial legislation until the government ratified the Convention Concerning the Protection of the World Cultural

and Natural Heritage (The Republic of Indonesia, 1989) and legislated Cultural Heritage Property Act number 5 in 1992 (Fitri et al., 2015). In 2010, the central government of Indonesia enacted Cultural Heritage Act number 11 that is currently applied. According to this regulation, cultural heritage (CH) is the physical representation of cultural legacy in the form of objects, building, structure, sites, and areas (The Republic of Indonesia, 2010). At the local scale, the provincial government of Yogyakarta has ratified the national HC regulation through the provincial regulation to meet the local context of HC (The Provincial Government of Yogyakarta, 2012).

Both the national and Yogyakarta regulations concern purposes of HC such as protecting local culture, strengthening identity and supporting the economy (The Provincial Government of Yogyakarta, 2012; The Republic of Indonesia, 2010). The practice of HC usually uses government regulation to determine what best represents the historical and cultural past (Su, 2018). In a city context, buildings and urban landscapes are of public interests and the object of HC policy (Mualam & Alterman, 2018). The integration of HC and public policy reflects the government commitment to follow international conventions in adopting principles of heritage interpretation and presentation (ICOMOS, 2008). The policy safeguards the process by which heritage can be recognised widely and managed sustainably as cultural and economic resources.

Table 1. List of heritage objects located in Yogyakarta urban centre (Balai Pelestarian Cagar Budaya Yogyakarta, 2019; with necessary modification)

Heritage objects	Physical forms
Vredeburg fort	Colonial fort
Kraton fort	Fort made by Yogyakarta court
Gedung Agung	Colonial building formerly used as a colonial office
Margamulya church	Religious building
Kauman mosque	Religious building
Klenteng Hok Tik Bio	Religious building
SDN Ngupasan building	Colonial building used as a school
KONI building	Colonial building used as an office
Bank BNI 1946 building	Colonial building used as a bank office
Post Office building	Colonial building used as a post office
Bank Indonesia building	Colonial building used as a bank office
Kraton complex and Tamansari	The palace complex of Yogyakarta
Pakualaman museum	A section of Yogyakarta palace used as a museum
Panggung Krapyak	An element of philosophical axis in the form of a monument located to the south of Kraton.
Tugu	An element of philosophical axis in the form of a monument located to the north of Kraton.
Beringharjo market	Traditional market located to the north of Kraton

Yogyakarta heritage is protected by the Cultural Heritage Act number 11/2010 and the Provincial Regulation of Daerah Istimewa Yogyakarta number 6/2012. The Bureau of Cultural Heritage Conservation (*Balai Pelestarian Cagar Budaya/BPCB*) lists 16 historic buildings located in the urban centre of Yogyakarta (Balai Pelestarian Cagar Budaya

Yogyakarta, 2019). These objects are forts, religious buildings, palaces, monuments, and offices (see Table 1). All of these buildings were constructed in the 18th and 19th centuries.

The following photos show two examples of buildings protected by the current legislations. Figure 3 depicts Tamansari—located in *Kraton* (palace) complex.



Figure 3. Tamansari or the Water Palace in *Kraton* complex. (The first author, 2019)

Tamansari was built in 1765 and designed by Tumenggung Mangundipura and Demang Tegis (Wardani et al., 2013). This site represents traditional architecture and court antiquity. Figure 4 below presents a sample of colonial building with *Indische style*. This building was built in 1879 and designed by two Dutch architects—Eduard Cuypers and Marius Hulswit (Kurniawan, 2017). This building is one of a few heritage buildings in monumental scale located at the northern area of *Kraton*.



Figure 4. The Central Bank of Indonesia. (The first author, 2019)

The provincial government specifically protects philosophical axis representing the particularity of Yogyakarta heritage as mandated in chapter six of the Provincial Regulation of Cultural Heritage. The

municipal government of Yogyakarta also includes cultural heritage in the current urban development plan by designating the area of philosophical axis as conservation and tourism zones (The Municipal Government of Yogyakarta, 2015). Figure 5 depicts the zoning map of Yogyakarta. On this map, the core of *Kraton* complex (the palace), Vredeburg fort, and Gedung Agung building are designated as heritage conservation zones (coloured in solid purple). The map also demonstrates the northern area of *Kraton* as a commercial area supporting the heritage tourism.

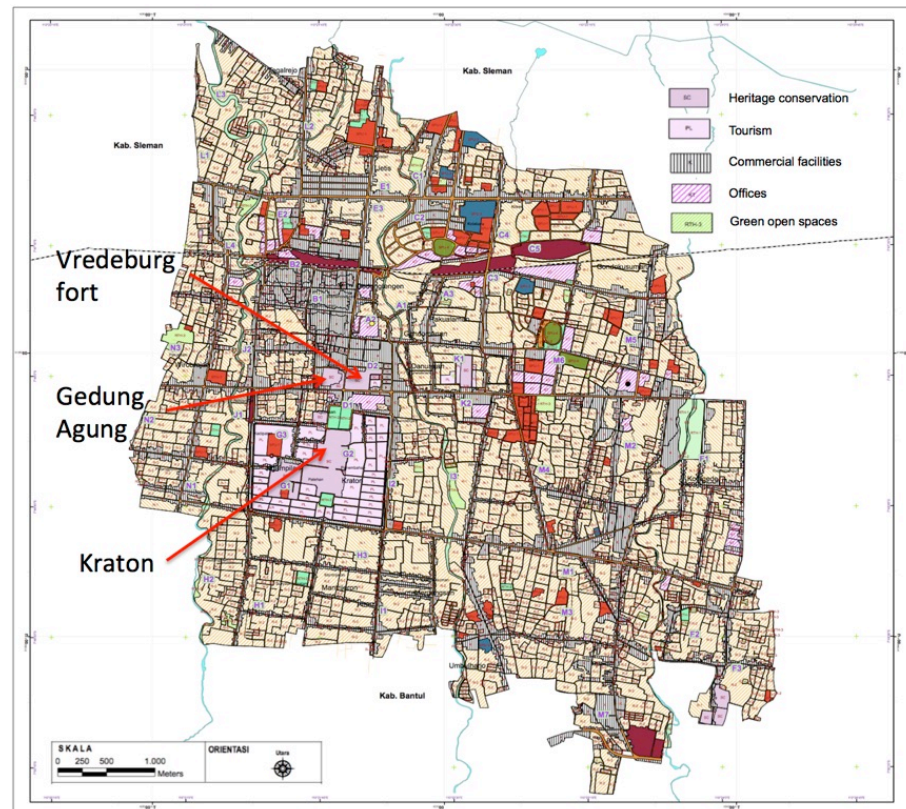


Figure 5. The current zoning map expresses heritage sites as conservation and tourism areas. (The Municipal Government of Yogyakarta, 2015; with necessary modification)

Heritage tourism is one of the government's priorities (Giyanto, 2015). The policy is initiated by the registration and protection of heritage. The action plan of Yogyakarta historic city continues the protection by integrating HC in tourism industry to foster local economy (The Municipal Government of Yogyakarta, 2012). In this case, tourism is a form of commonly implemented 'intentional activity' following heritage conservation (Graham et al., 2000). The implementation of heritage tourism reflects the government's intentions to benefit from the economic value of heritage (Vargas, 2018). This strategy is essential to provide finances for conservation as well as encourage local entrepreneurs and the subjects of HC to keep participating in conservation.

SOME ISSUES REGARDING HERITAGE CONSERVATION

HC is primarily directed to enhance the living quality in urban settlements as a part of sustainable development agenda (The United Nations, n.d.). This practice requires measures regarding stakeholders' collaboration and responsible tourism to secure the heritage authenticity and equity in HC practices (World Heritage Committee, 2012, 2015). Particularly in urban area, HC becomes an essential sector due to its economic and cultural potentials. Nevertheless, this potential is coincident with a threat caused by unmanaged urbanisation as suggested by UNESCO (2011) and the Indonesia heritage board (Balai Pelestarian Pusaka Indonesia, 2013).

As explained earlier, the regulation of HC is followed up with urban planning and tourism policies. *Kraton* complex has been designated as conservation zone that allows tourism. In addition, Malioboro Street (the northern part of philosophical axis) and Kotabaru district is appointed as a commercial zone. Kotabaru district is a historic area located to the east of philosophical axis. Figure 6 depicts the current situation on Malioboro Street with many commercial buildings. The situation expresses a general issue of HC in Yogyakarta.



Figure 6. The current situation at Malioboro Street. (The first author, 2019)

It is not surprising that the current image of Yogyakarta as a heritage and tourism city attracts many people and investments. Unfortunately, this situation leads to a paradox that the attraction of heritage can, in turn, become a problem to HC. Tourism has encouraged hotels to overload the Yogyakarta region in 2016 (Maharani, 2016). There are also other problems such as the spoiled water quality due to the massive hotel development (Ferish, 2016) and the destruction of old buildings (Murti & Wijaya, 2013). The look of modern and commercial facilities gradually dominates urban spaces. Figure 6 obviously expresses this condition.

The urbanisation also influences people's perception about the particularity of Yogyakarta. An interview participant argued that Yogyakarta had lost its singularity. This person said:

“There are so many tall and modern buildings that make Yogyakarta looks the same as other cities. We can no longer promote the uniqueness of this city”.

Other participants criticised the current situation by asserting that the heritage sites had become a mere tourism object without any appreciation for historic and symbolic values. Therefore, in the perspective of research participants, Yogyakarta was no longer recognised as a traditional city, but a metropolis, capitalised, and secularised city. Concerning this, scholars have warned an issue as the simplification of cultural and historical meanings into economic consumption (de Noronha Vaz et al., 2012; L. Smith, 2006; Wall & Black, 2004). It seems that the current practice of official heritage is incapable of preventing this problem.

These opinions suggest that there is a shift of image of Yogyakarta, from the past romanticism promoted by HC policy to the current reality of urbanisation. Although the individual heritage buildings are still present, the urban space has started to lose its association with history and traditional philosophy.

THE REPRESENTATION OF UNOFFICIAL HERITAGE

This study implemented in-depth interviews in investigating the unofficial heritage. The participants were asked to express their opinions about colonial and traditional heritage. As a result, the study found meanings associated with the colonisation and traditional philosophy.

Meanings Associated with the Colonisation

The first meaning is associated with history. Research participants mentioned historic buildings and monuments as *cagar budaya* (cultural heritage). The government also uses the same term to indicate the heritage. The use of this term expresses people’s awareness about HC and government’s involvement in the practices. In this sense, the conservation has contributed to public recognition of the physical representations of heritage and the meanings.

Heritage connects Yogyakarta society to collective memories about colonisation and the war of independence around 1945. The participants admitted that colonial buildings recalled memories about the past tragedy and evoked the spirit of nationalism. Regarding this, a participant argued that:

“It is true that the colonial buildings are Dutch heritage, but the buildings also reflect Indonesian fighting spirit against colonisation”.

Another participant suggested:

“Thanks to the current government (through HC policy), so we can remember the history. We should conserve (the heritage) and continue to prolong the independence”.

These statements express the connection between heritage, collective memory, and nationalism. The collective memory is primarily about the polarity between the colonials and the colonised society by creating the image of native society as primitive savage that needs control from the more advanced society as argued by Said (1979). This political situation is particularly expressed by the presence of Dutch military area the early industrialisation in Yogyakarta (Siregar, 2019).

The colonisation has situated the Indonesians in the same experience of the past tragedy or ‘historical identity’ as argued by Smith (2012). However, the historical narrative has not ended. Instead, it evolves into a consensus about what should be done in the present and the future—prolonging the independence and developing the society. In other words, the heritage sites evolve a narrative from the tragic colonisation into the present and future imagery of Yogyakarta society.

Meanings Associated with Traditional Philosophy

The second meaning reflects traditional philosophy. Herusatoto (2001) argues that particularly in Javanese society, like Yogyakarta, the symbolism is essential to the internalisation of traditional value in the society.

In each interview, the participants were asked to explain the meanings of traditional urban fabrics according to their perspective. Two questions were asked: “what are the meanings of the traditional sites for you and Yogyakarta society?” and “what makes you and the society believe (as a part of local religion) and appreciate the meanings?” These questions stimulated in-depth conversations about the topic.

Table 2. Themes and meanings from the first question

Themes	Representations	Perceived meanings
Traditional city	Traditional urban fabrics in general forming the philosophical axis and <i>Catursagatra</i> .	<ul style="list-style-type: none"> • Lofty value (<i>nilai-nilai luhur</i>) of Yogyakarta urban morphology • A belief (<i>kepercayaan</i>) of people in Yogyakarta
Philosophical axis	An urban form configuration comprised of <i>Tugu</i> monument, <i>Kraton</i> (the palace), and <i>Panggung Krapyak</i> monument	<ul style="list-style-type: none"> • Symbolic relationships between Yogyakarta and geographical features surrounding the city • Symbolising harmony in three relationships: between human and God (orientation to Mount Merapi or the north), the social relationship among humans (orientation to <i>Kraton</i>), and the relationship between human and nature (orientation to South Ocean or the south)
<i>Catursagatra</i>	An urban form configuration comprising <i>Kraton</i> , <i>Alun-Alun</i> , the Great Mosque, and Beringharjo market	Symbolising kinship among people and harmony in social life

The analysis revealed five themes: traditional urban form, philosophical axis, *Catursagatra*, sustaining traditional values and living museum. Table 2 and Table 3 summarise the interview findings.

Regarding the first interview question, the participants mentioned some representations of traditional symbols in Yogyakarta’s urban form—philosophical axis and *Catursagatra* (see Table 2). The current components of these traditional models of urban form are the same as the ones developed in the past.

The majority of participants argued that the traditional urban form of Yogyakarta symbolises the sublime value of local wisdom (*nilai luhur*). A few participants emphasised this opinion by asserting that this value corresponds to a belief in Yogyakarta. It was evident that this participant projected Yogyakarta’s cosmology on to the urban form, i.e. the philosophical axis and *Catursagatra*.

The second question revealed opinions about the motivations behind the admiration for the traditional philosophy (see Table 3). Participants argued that heritage is more than a historical commemoration. They suggested that the values provided an ethical standard for the current civilisation.

Table 3. Themes and meanings from the second question

Themes	Perceived meanings
Sustaining traditional values	<ul style="list-style-type: none"> • Transmitting traditional values or norms and wisdom through generations • Building personal character following traditional values
Living museum	Heritage is not only the physical built of environment but also the society that still prolonged its tradition.

As suggested by Herusatoto (2001) and Roqib (2007), Javanese tradition aims at building personal character through spirituality and morality. Regarding this, a participant said:

“I am happy with the presence of mystical values in Yogyakarta (as represented by the traditional philosophy) because it is a part of the society. I do not see myself as a Christian or Catholic. Rather, I prefer to admit everyone as a human with a common cultural background (the Javanese), history, and communication style (language)”.

The traditional urban fabrics symbolise local wisdom, which remind people to live in harmony, equality, and peace. The majority of participants argued that this kind of interaction is the character of Javanese people who expresses their ethnic identity. It is how an individual could be recognised as a Javanese. Su (2018) uses the term ‘authentic self’, which is associated to this kind of identity. This identity allows a person to claim themselves as a true part of a social group. This finding suggests that the traditional urban fabrics, philosophical meanings, and social character building are integral to Yogyakarta’s

culture. It is a responsibility of each society member to preserve the identity by participating in HC and prolonging the tradition. Consequently, the blending between traditional urban fabrics and the character of society makes the historic area as a living heritage. It is a place where heritage is manifested not only through the buildings, but also the people who prolong traditional philosophy from the ancestors.

THE RELATIONSHIP BETWEEN OFFICIAL AND UNOFFICIAL HERITAGE IN YOGYAKARTA

There is a connection between the official and unofficial approaches in the construction of heritage value. To a certain extent, the official approach of HC has supported the unofficial heritage by conserving prominent historic buildings that allow observers to recognise the overall history and local culture in Yogyakarta. Then the deeper senses of heritage value, such as nationalism and pride, are formed among the people.

The study found that the official heritage connects with unofficial heritage in three forms. Firstly, the official heritage contributes to the creation of post-colonial meanings. The study found that research participants are still aware of tragedies associated with the colonisation and independence war. However, the memory does not stop at the tragedies, but evolves into the current interpretation of freedom—nationalism and a spirit to sustain the independence. Secondly, the heritage policy conserves traditional symbols essential to local belief and wisdom. The implementation of this policy reflects a practice of using local belief to connect the city and its citizens with the traditional 'past' as also suggested by Zhu (2018). It is a primary contribution of HC to locality, since there is no other city in Indonesia designed in a traditional cosmology similar to Yogyakarta (Aditya, 2017). In the local context, HC policy helps Yogyakarta society to prolong their tradition. Thirdly, the overall HC develops pride in Yogyakarta cultural uniqueness. The government makes effort to educate citizens about historical and cultural significances. As a result, the research participants associated the term *cagar budaya* with historic buildings expressing their positive attitude to the current HC policy. The increase of public's appreciation of heritage in turn encourages the society to develop collective awareness and support HC as suggested by Monteiro, Painho, & Vaz (2015).

The study also found a disconnection between the two approaches of HC. The aforementioned issues express this disconnection. This problem was evident through the increase of capitalist and secular values in the city as perceived by the participants. The city begins to lose its historical and philosophical meanings. The problem reflects a conflict between HC and economic activity that should be well managed by the local government. Although the official heritage does not intend to cause the problem, unfortunately, the current paradigm of official heritage allows heritage commodification to introduce the secular and universal values.

The uncontrolled economic activity jeopardises the heritage value through the introduction of modern and commercial expressions as a competitor for cultural and historical values. Then a question rises about how HC and the degradation of heritage value can coincidentally happen? The official approach of HC is characterised by the protection of individual historic buildings as shown in Table 1. Research participants still recognised each historic building from its appearance, along with the values. The research participants also used their perception to connect the value of a historic building with its surrounding. In this regards, the visuals of modernity strikingly defeated the heritage value of individual historic buildings. The same phenomenon is also evidenced in the study of Najd et al. (2015). They suggest that the surroundings have a major contribution to people's perception of heritage. The historic buildings are situated side by side with modern and commercial facilities. In a situation where commercial facilities dominate the urban space, the sense of history can be easily distorted by modernity. This case reflects a gap between experts and non-experts in the interpretation of heritage as asserted by Fredheim & Khalaf (2016). Especially in an urban area, the heritage value in terms of authenticity as described in Nara Document (ICOMOS, 2004) is delicate because the surroundings of heritage site sensitively affect people's perception. In this case, the government should have a better control on urban development that can influence the physical character around the heritage sites.

The practices of official and unofficial heritage approaches should be well combined. The official heritage provides a systematic and legal way of HC. By using this approach, the government of Yogyakarta has a capacity to control urban development and physical character around the heritage sites. This act makes heritage available as a long-term economic resource. Regarding this, the authority has a key role to manage the interpretation and presentation of heritage as suggested by ICOMOS (2008). The unofficial heritage can support the practice of official heritage by incorporating general public in HC. The practice of unofficial heritage contributes to social benefits in terms of social bond and character building. Heritage gives a direct effect on people's comprehension of tradition and collective memories. In addition, the practice of unofficial heritage is sensitive to the distortion of heritage value that is mostly caused by urban development and heritage commodification. In this case, the authority as the city regulator should pay attention to citizens' perception of the heritage values and use this perception to notice the value distortion. There is a need for local community and NGO to get involved in HC especially in coping with institutional difficulties of government agencies as argued by Hung (2015). Through this collaboration, the government and society will have the capability to diminish the negative effect of heritage commodification and urban development.

CONCLUSIONS AND RECOMMENDATIONS

The study demonstrates that official and unofficial approaches of heritage are inseparable. This study has provided evidence that a problem is present in the form of massive heritage tourism that shifts the traditional meanings of Yogyakarta. This becomes the rationale for why the government through official heritage needs to protect the singularity of Yogyakarta by also paying attention to meanings perceived by the citizens.

The unofficial heritage is primarily characterised by symbolic values expressing nationalism and traditional philosophy that present as the outcome of official heritage. The meanings strengthen social attachment to the city and support the citizen's character building as guided by the traditional philosophy. This situation represents the locality of Yogyakarta. In this case, there is a connection between the official and unofficial approaches of heritage regarding historical and cultural values.

The comprehension of unofficial heritage contributes to an academic discourse associated with the notion of heritage value. The unofficial approach of heritage has a potential for unfolding the perceived meanings of heritage. The study found that the meanings are closely related to the physical condition of historic area in terms of the presence of modern facilities and activities. Therefore, this approach can be used to evaluate the extent to which urban development influence heritage and the values that is the notable finding of this study.

The pragmatic contribution of this study concerns the government involvement in controlling urban development around heritage buildings. HC is not only about the protection of individual heritage buildings, but also the creation of appropriate environment around the heritage sites. In the case of Yogyakarta, the better urban development plan and monitoring are needed so that the degradation of heritage value can be avoided. Regarding this, the perception of general public provides an analytical tool of assessing the value change.

The central and municipal governments, through official heritage, provide legal standing and regular programs for HC. Through this way, the two-way cooperation between government and citizens can be maintained to prolong sustainability and a balance between the historical-cultural and economic aspects of the city.

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CONFLICT OF INTERESTS

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In this research, the necessary permissions were obtained from the relevant participants during the in-depth interview.

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Resume

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Energy Reduction, Daylight and View Quality Assessment of a Passive Dynamic Façade in Hot Arid Climate

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Abstract

Purpose

This research aims to create a passive dynamic system with immediate responses to environmental conditions without needing an energy source to operate and reduce operation and maintenance costs.

Design/Methodology/Approach

There has been growing awareness in recent years of the energy consumption and interior environmental comfort of buildings. Substantial evaluation of the building envelope and indoor human experience is required to develop sustainable solutions, create a responsive system that enhances building performance and human comfort in terms of energy consumption and daylight quality. In this paper, a new proposed advanced integrated façade called a passive dynamic shading device (PDS) is revealed. The system is designed to contribute to energy reduction, daylight availability, and view quality through its ability to change position and placement to respond and adapt to new climate conditions. The thermal expansion phenomenon was used in the actuation process, with heat-activated actuators that correspond to specific dry-bulb temperatures. This paper concisely demonstrates the functional mechanism and performance of the PDS. Sophisticated energy and daylight simulations have been executed to distinguish between three case studies. Each case represents one architectural option: 1- without shading devices. 2- with conventional fix shading devices. 3- PDS.

Findings

The result shows the PDS can efficiently reduce overall energy consumption by up to 50%, increase the amount and quality of daylight by up to 60% compared to fixed shading devices, and obstruct the view from the interior 22% of the year.

Research Limitations/Implications

The limitation was with the thermal expansion mechanism since it expands due to the rise of temperature, which led to system movement in the ineffective time of a day.

Social/Practical Implications

The study is Creating a new affordable dynamic system comparing with an active dynamic façade system. The system is applicable on any building scale with simple construction.

Originality/Value

Unlike other dynamic façade system studies, in this study, the goal is to create a new passive system using the thermal expansion phenomenon and evaluate its effectiveness on energy reduction, daylight availability, and view quality.

Keywords: *Dynamic façade, kinetic façade, thermal actuation, thermal actuator, thermal expansion.*



INTRODUCTION

In the twentieth century, energy consumption abruptly increased due to urban sprawl, resulting in more commuting [1] and housing [2]. Also, creating the need for essential infrastructure such as public transportation, roads, and streetlights. Another reason has been economic growth to meet increasing demand from consumers due to Population growth. These two factors (i.e., increased urban sprawl and economic growth), contribute to global environmental problems, including the greenhouse effect and the resulting climate change [3].

Conventional understanding of the building envelope is that it serves a barrier between the exterior and interior environments, which is desirable. However, the building envelope is more than this and serves as the foundation for up to 80% of solutions and strategies aimed at reducing energy consumption and enhancing occupants' experience in terms of thermal and visual comfort, enabling the creation of high-performance buildings that respond to their environment [4]. It plays a significant role in energy efficiency, human thermal and visual comfort, and human psychological wellbeing. The optimum balance of environmental concerns, occupants' comfort, and energy savings can be achieved through innovative building envelopes that are sensitive, interactive, responsive, and adaptive.

This research paper explores the use of actuation energy in building façade technology. The thermal expansion phenomenon is adapted for the actuation process. Creating a passive dynamic façade system is incredibly efficient in terms of initial cost, energy required for operation, and maintenance. The feasibility of implementing such a system in a building is determined by environmental parameters. Performing a daylight analysis and energy simulation in multiple cases with different façade solutions can facilitate assessment of such a system.

Thinking about the day in terms of orientation, each building façade receives direct solar radiation for certain hours. When designing a building, architects can implement fixed shading devices to block direct solar radiation, control glare, and save energy, but based on the orientation of a particular building, these measures are not needed at all points of the day. Ensuring the right amount of daylight in a building is an effective energy-saving strategy and plays a key role in human health and psychological wellbeing. However, this raises the question of whether shading devices that affect the amount of daylight are necessary all day? View quality is an important factor in human psychological wellbeing and the healing process, as scientific research has concluded. Fixed shading devices obstruct views, but it is unreasonable to eliminate them since they serve an important function. However, are they necessary all the time? Using an active dynamic façade addresses the question above. However, it is unclear whether conventional dynamic shading devices can be considered a sustainable

solution for saving energy since they consume a considerable amount of energy for operations.

LITERATURE REVIEW

Adaptive building skins is a trending research area in sustainable design that combines active and passive design strategies. According to Rodriguez and Alessandro (2014), the adaptive building skin demonstrates adaptability, transformability, and evolution in the face of different environmental aspects. Jia-Yih and Chu Huang (2016) conducted research on adaptive building façade optimization in Taiwan. They assessed two transformation modes, namely opening shutters (A) and tilting blinds (B), both of which had the same defined parameters and evaluation platform (EnvLoad Evaluation Platform). The results demonstrate that based on the energy required for controlling the opening rate of the shutters, case (A) is a more effective shading design strategy than controlling the shading coefficient value in case (B). [5]

Bacha and Bourbia (2019) created a computational framework to optimize varieties of shading design as a second skin formed by direct solar radiation and daylight utilization parameters. The Ecotect and Radiance platforms are simulation tools used to assess shading system in terms of radiation exposure, daylight utilization, and energy consumption. Such a system has been implemented in a glass office building in the city of Biskra located in the south-eastern part of Algeria, which is considered a hot, arid region. The results indicate direct solar radiation exposure decreased by 17.9%, energy consumption was reduced by 43%, and indoor air temperature was reduced between 4.0°C and 4.8°C. The researchers also integrated photovoltaic cells that generate 6,000 Kw/month into the design [6].

Ahmed, Abdel-Rahman, Bady, and Mahrous (2016) conducted a field study to experiment with a kinetic shading system. The study was conducted between July 20 to August 20 of 2015 in New Borg El-Arab in Alexandria, Egypt (30.9°N, 29.6°E). The experimental case is the south-oriented fenestration of an apartment located on the third floor. Other apartments with the same properties in terms of dimensions, HVAC system, equipment, building envelope, and orientation were used for comparison. The system moved vertically, powered by two servo motors using a direct current as the source of actuation energy. The actuators were monitored by an Arduino microcontroller board with an outdoor temperature sensor and 28°C as the setpoint. The results show a decrease in indoor temperature ranging from 25.5°C to 35°C as the baseline to 25.5°C to 28.2°C after installing the proposed system. The results demonstrate how the system can enhance human thermal comfort and reduce energy consumption by 15 to 20 W/m² of direct solar radiation [7].



Elghazi, Wagdy, and Abdalwahab (2015) investigated an origami-based façade design controlled by daylight performance. The Daysim and Radiance platforms, which are daylight simulation tools, were used to control daylight uniformity. The researchers considered a hypothetical indoor office space with an area of 20 m² located in Aswan, Egypt (24°05'N 32°54'E), which is classified as having a hot, arid desert climate (Peel et al., 2007). The proposed system was implemented on the south façade of the building. The results show a comparison between a static base case and the proposed dynamic system in terms of hourly spatial daylight autonomy (HsDA) and annual sun exposure (ASE). Thus, the study validated the usefulness of the proposed system since it enhanced the indoor environment through increasing daylight quality [8].

Jayathissa, Schmidli, Hofer, and Schlueter (2016) studied electricity generation and building energy consumption through an adaptive building façade system comprising square copper indium gallium selenide (CIGS) panels with two degrees of rotation freedom. The EnergyPlus platform was used for energy simulation through the DIVA interface. An hourly simulation was run for each dynamic configuration corresponding to the study location of Zurich, Switzerland. The results demonstrate the combination of electricity generation and adaptive shading can compensate for 41% of energy demand over an entire year for the research base case [9].

RESEARCH METHODOLOGY

This work assesses the performance in terms of both energy consumption and daylight utilization of fixed conventional shading, PDSs, and a base case without shading devices. This research employed dynamic simulation for both the energy and daylight parameters to assess thermal actuators' operation, which allows passive, dynamic movement in response to a defined ambient temperature, thus providing indispensable protection from direct solar radiation. The shading design follows multiple performance criteria to assure the applicability and eligibility for the specific location. The Energy Plus and Radiance platforms, whose development was funded by the U.S. Department of Energy's (DOE) Building Technologies Office (BTO), are simulation tools for performance assessment of energy consumption and daylight parameters. They can adapt the dynamic changes during the simulations which makes them suitable for this study. Both can be connected to Rhinoceros, which is a commercial 3D computer graphics and computer-aided design program through DIVA-for-Rhino with Rhino and Grasshopper plug-ins (Figure 1.)

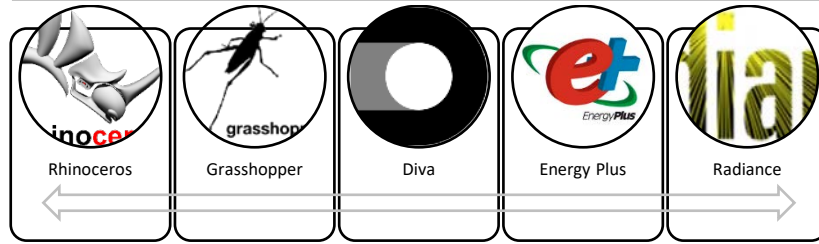


Figure 1. Employed software

The research makes a consecutive comparison of the three phases documented in Figure 2. Each of the three comparisons measures energy consumption and daylight. The first stage focuses on the base case, which has no shading devices. While this case does not serve as a benchmark for comparison, it determines the value of using shading systems. The second phase analyzes the case with fixed shading devices, and the third analyzes the case with PDS. An additional step of the third phase is manipulating the PDS materials to find potential alternatives to enhance performance. The third phase requires a dynamic simulation that is updated on an hourly basis. The Archsim tool, which is a part of DIVA for the Grasshopper plug-in, can create an hourly schedule over the course of a year based on restriction inputs, including environmental climate data. In this research, the dry-bulb temperature, which is extracted from the Energy Plus weather file, drives the PDS operation schedule. It allows the PDS to operate accurately in real time based on the data.

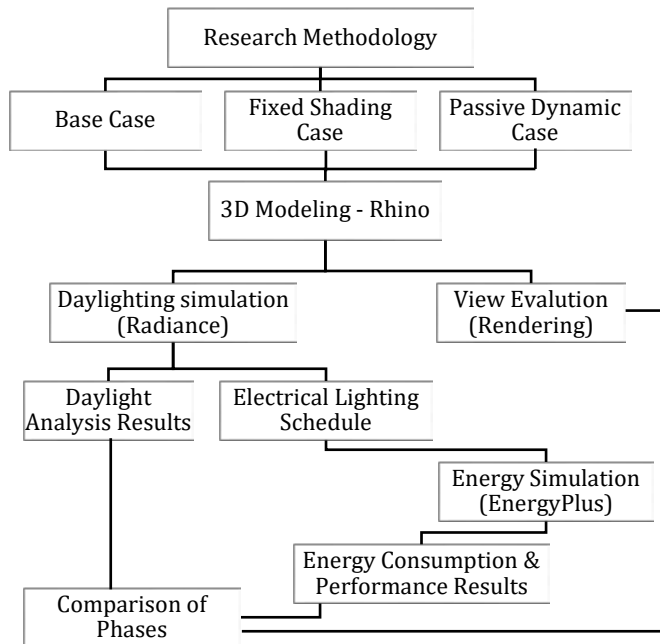


Figure 2. Research methodology diagram

IMPLEMENTATION

Base Case Location: The location of the case study is Phoenix, Arizona (33.4484° N, 112.0740° W), which is located around the center of the Salt River Valley, a broad, oval-shaped, nearly flat plain. The city has an elevation of about 1,100 feet and a desert-type climate that is usually dry with low annual rainfall and low relative humidity. The summer



months have high daytime temperatures between 105°F and 115°F, and the winter months are moderate with temperature generally in the lower 60s. During the three coldest months of winter, nighttime temperatures decrease below freezing, but the afternoons are mostly sunny and warm. January and December have sunshine an average of 78% of the time. This rises to a maximum of 94% in June. The yearly average for sunshine is 86% [10]. According to IECC (Table 1.), Phoenix falls in the 2B climate zone, which is considered hot and dry and has high cooling thermal criteria measured by cooling degree days (CDD) [11].

Table 1. Phoenix’s climate characteristics (by IECC)

ZONE NUMBER	TYPE	THERMAL CRITERIA	REPRESENTATIVE U.S. CITY
2B	Hot-Dry	6300 < CDD50°F < 9000	Phoenix, AZ

Base Case Design and Properties: The base case of the study is a one-story office building, with applied fixed shading devices and PDSD. The building has open floor plan (figure 3.) and only one window on the west façade (figure 4.). The building meets the minimum requirements of the 2018 City of Phoenix Building Construction Codes (PBCC) in terms of thermal protection. The minimum requirement for this type of building is 19 heat resistance value for walls and 30 for roofs. The building’s properties are as follows:

Table 2. Building design and construction characteristics (by author)

Building’s Properties	
Dimensions: 25 ft x 14 ft	Floor finish material: Exposed concrete
Floor area: 350 sq. ft	West façade area: 225 ft ²
Ceiling high: 9 ft	Window area: 32 ft ² = 14% of the west façade
Ceiling type: Exposed	Window dimensions: 8 ft x 4 ft
Wall construction: Metal frame, R19	Window construction: Aluminum frame with single glazing
Wall exterior finish material: Stucco	Window orientation: West
Roof construction: Metal deck, R30	Equipment: Office
Roof finish material: White coat	Lighting: 10.76 W/m ²

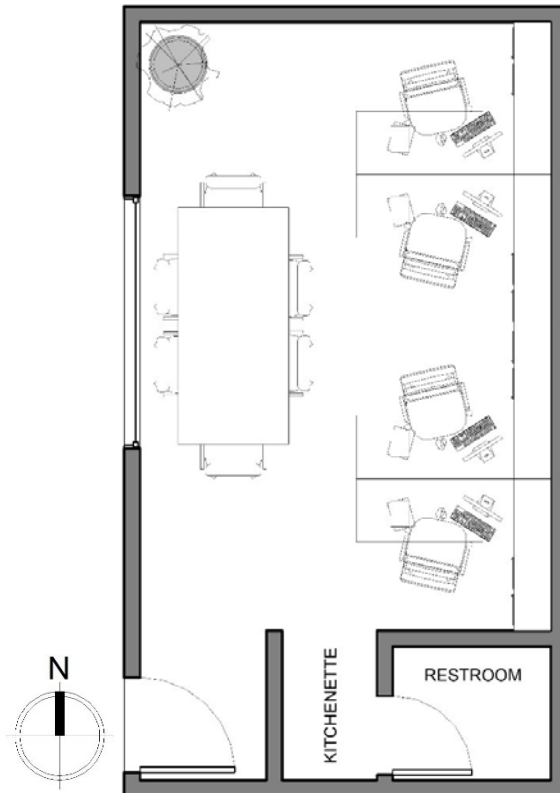


Figure 3. Base case floor plan

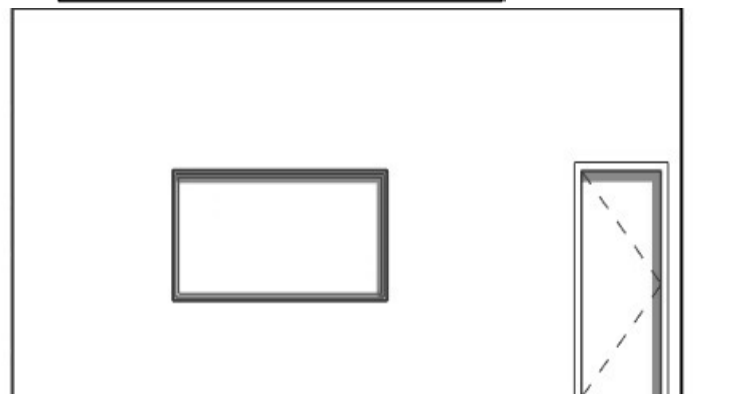


Figure 4. Base case West Elevation

Fixed Shading Design: In hot climates, the most effective way to reduce the solar load on fenestration is to intercept direct radiation from the sun before it reaches the glass. Properly designed fenestration can significantly reduce the heating load during the winter months by admitting solar radiation. Just as significant, however, is protection from excessive solar radiation in the summer to reduce the cooling load. Fully shaded windows from the outside have a solar heat gain reduction of as much as 80% [12].

Fenestration can be shaded by overhangs (extension of the eave) or by vertical and horizontal architectural projections. The ability of horizontal panels or vertical louvers to intercept the direct component of solar radiation depends on their geometry and profile, or shadow-line angle. The profile (shadow-line) angle is defined as the angular difference between a horizontal plane and a plane tilted about a

horizontal axis in the plane of the fenestration until it includes the sun (Figure 5.) [12].

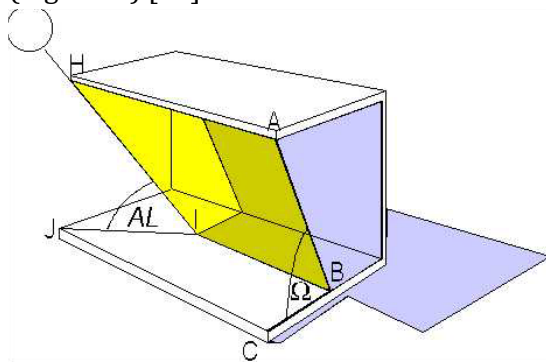


Figure 5. Profile or shadow-line angle Ω (by Prof. Nader Chalfoun)

The profile angle Ω can be calculated by equation (1) [12]:

$$\tan \Omega = \tan AL / \cos(\text{Solar AZ} - \text{Window AZ})$$

The window azimuth is 0° if facing south, 90° (or -270°) if facing west, 180° if facing north, and -90° (or 270°) if facing east (Figure 6.) [12].

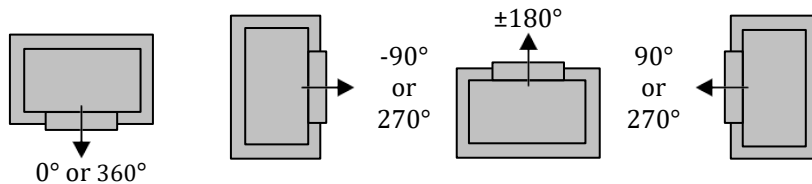


Figure 6. Window azimuth (by Prof. Nader Chalfoun)

A shading device that works on a façade at a specific time will not necessarily be effective during other times of the day due to the diurnal factor. It is also true that shading devices designed for a specific season may not be effective for another season due to the seasonal factor. At low sun angles, especially early morning and late afternoon, horizontal overhangs cannot efficiently shade windows. Therefore, it is recommended that a continuous overhang be utilized to shade windows throughout the day in the summer.

Proposed Fixed Shading Devices: The proposed shading device protects the window from April 21 through the end of August, which is considered the summer season. On April 21 at 3.00 pm, Phoenix has an altitude angle of 49.06° and an azimuth angle of 67.36° . To design efficient shading devices, the profile angle (shadow-line) must be calculated through equation (1).

The west profile angle is $\tan \Omega = \tan 49.06^\circ / \cos (67.36^\circ - 90^\circ) = 51.3^\circ$ The south profile angle is $\tan \Omega = \tan 49.06^\circ / \cos (67.36^\circ - 0^\circ) = 71.73^\circ$

To ensure an acceptable depth for the shading devices, the window as divided into four segments, each measuring one foot in height and the length of the window. Figure 7. shows a graphical method of designing shading devices. In this case, the shading dimensions are determined by drawing a perpendicular line from the bottom of the window to the bottom of the segment. The line is then rotated by the west profile angle to create the exact shading depth. In this case, the depth was rounded up from $9 \frac{3}{16}$ in to 1 ft for simplification and to create a shade that will protect the window until 3:30 pm.

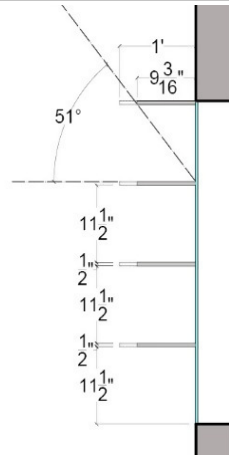


Figure 7. Graphical method of calculating the depth of shading structure

Figure 8. demonstrates the method of calculating the length of the continuous overhang. This is done by drawing a line from the bottom right of the segment and then rotating it by the south profile angle. To create a continuous overhang that is effective based on the diurnal factor, the overhang is extended until it meets the rotated line to create a 4-in overhang extension.

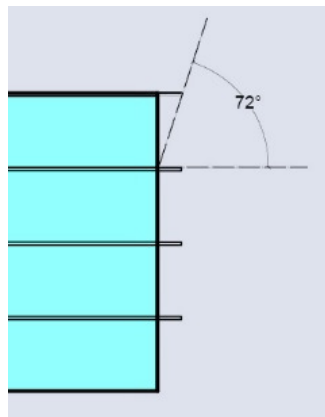


Figure 8. Graphical method of calculating the length of continuous overhang

Figure 9. Interior space on December 21 at 3:00 pm



Figure 10. Interior space on April 21 at 3:00 pm



Proposed Passive Dynamic Shading devices (PDS) Design: As explained in Section 4.3, the design of fixed shading is important when considering a shading system for a hot climate. The fixed shading must be designed for specific seasons and times of the day. Consequently, fixed shading is present on times and days not included in the shading design process, when it is not needed. The presence of fixed shading when it is not needed compromises daylight and energy consumption through increasing demand for electrical lighting. It also increases the heating load since the fixed shading partially blocks direct solar radiation in the winter. In addition, it obstructs views of the outdoors that enhance mental and physical health [13].

The PDS is an innovation system that enhances energy consumption, daylight, and view quality through passive dynamic movement that allows the shading system to be used only when it is needed, mostly in the summer. The passive dynamic movement occurs through thermal expansion in the actuators. A PDS increases the amount of useful daylight since it is not visible on winter mornings and most summer mornings, reducing energy demand for electrical lighting. This improves the cooling and heating load since the PDS blocks the direct radiation in the summer, which increases cooling energy demand, and allows the winter sun, which reduces heating energy demand, to penetrate into the building. The view is optimized through timing of the appearance of the shading system, as it is in use only when it is needed for essential purposes, reducing the amount of time it obstructs the view.

The proposed PDS follows efficient fixed shading design recommendations to enable a fair assessment of the impacts of dynamic shading compared to fixed shading. One of the main goals is for PDSs to be feasible for all users. They are different from algorithmic dynamic facades, which rely on many sensors and a complicated operating system, and are cost-effective in terms of initial costs, maintenance, and operation. To ensure the system's simplicity and effectiveness, I worked within the restrictions of a typical configuration of an automatic window opener for greenhouses (Figures 11. and 12.) since this assembly is provided by many companies.



Figure 11. Univent Automatic Vent Opener (by J. Orbesen teknik ApS)

Figure 12. Automatic Vent Opener (by ACF Greenhouses,2019)

The strictest limitation of the automatic window opener is the opening angle, which, since it relies on linear deployment, is difficult to extend past 90°. The assemblies generally have an opening temperature around 25°C, or 77°F, to optimize greenhouse temperatures. For this study, however, I assume a different opening temperature.

The automatic window opener is a thermal actuator which is also called thermal wax element, wax element, and thermostatic element. The thermal actuator assembly contains several components, as shown in Figure 13. No electrical energy is required to perform the actuation since the actuator converts heat energy into mechanical motion. The heat energy, represented by temperature, is calibrated to work at an activation setpoint to the engineered fluid (wax) located inside the actuator.

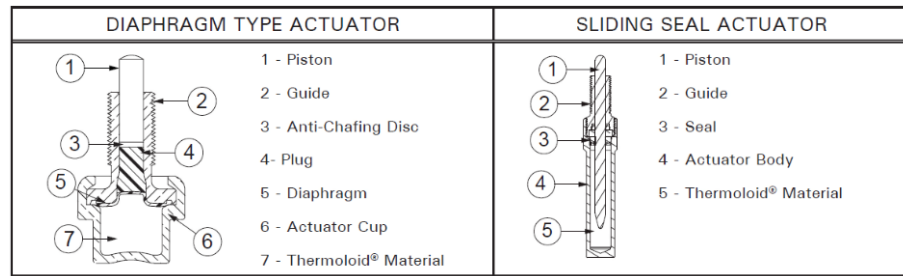


Figure 13. Thermal actuator assembly (ThermOmegaTech, Inc., 2019)

According to the fixed shading design, the overhang must have a depth of 1 ft, but dynamic shading requires clearance between the shading device and the window. I used two rules of thumb for the PDS design. First, the clearance is equal to the depth. Second, the system needs a fixed cavity with a depth twice that of the shading device (Figure 14.). The system must be connected so the folding mechanism can work. Therefore, I designed the vertical surfaces as hollow surfaces that act as a void to allow the occupants to have a view to the outside and allow diffuse light to penetrate to the interior (Figure 15.).

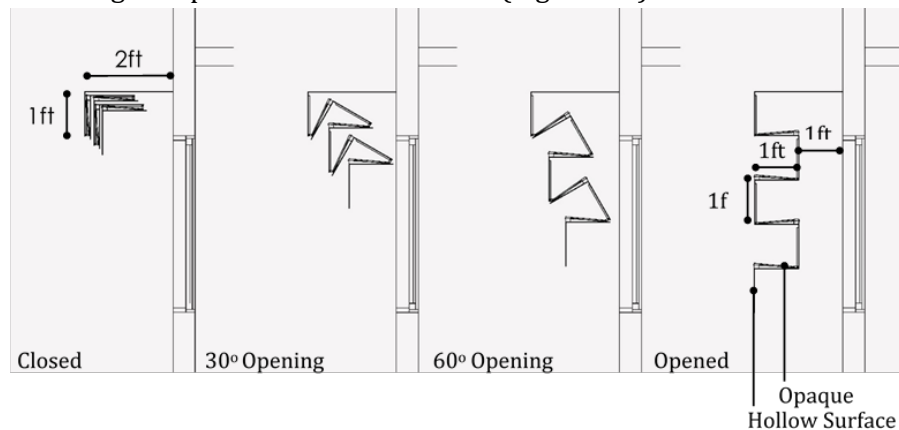


Figure 14. Cross sections of the PDS in all positions

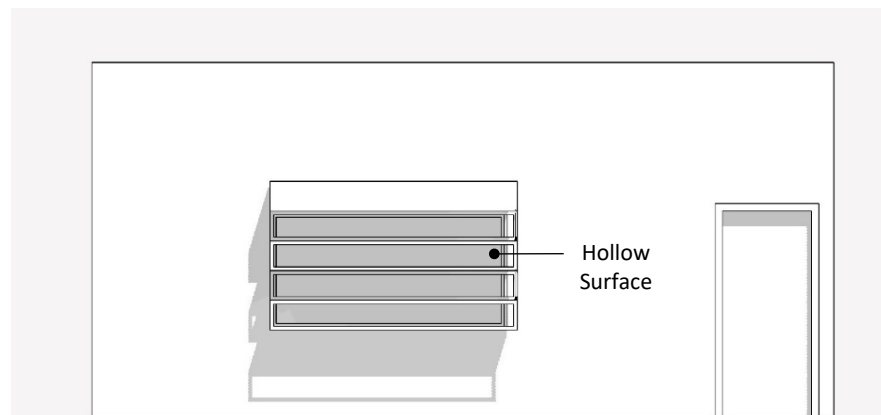


Figure 15. Elevation of PDS

PDS Operation Setup: After analyzing Phoenix’s EnergyPlus weather data through the Archsim plug-in, I found the most frequent daytime dry-bulb temperature in the summer to be 35°C (95°F), which was determined by examining the temperature of the total 8,670 hours of a year (Figure 16.). Thus, 35°C (95°F) is the opening temperature for the PDS. It is clear from Figure 16. that the device is in use for some hours off outside of the intended time of operation. However, the intended time of operation is 90% covered. Figure 17. demonstrates the temperature setup of the movement mechanism and shows efficient shading on June 21 at 3:00 pm.

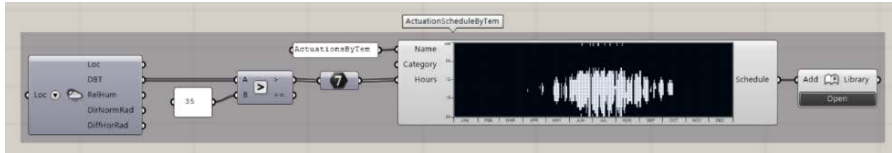


Figure 16. Actuation setup

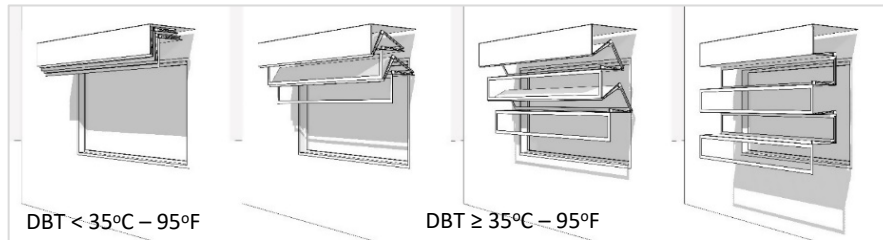


Figure 17. The relationship between dynamic movement and temperature

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PDS Schedule: The PDS operation schedule, generated by the Archsim plug-in, provides 78% unshaded conditions when the system is closed, and 22% shaded conditions when the shading device is needed (Figure 18.).

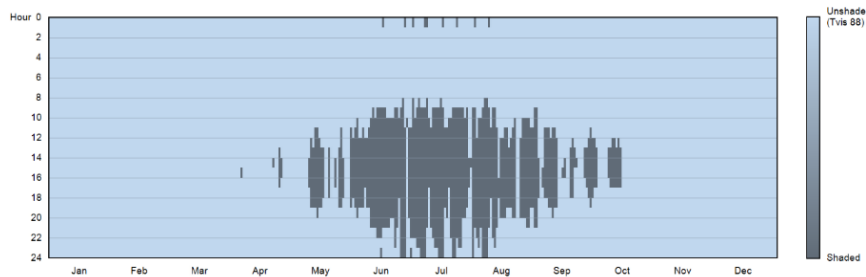


Figure 18. PDS operation schedule

TESTING AND RESULTS

Figure 19. shows the workflow of the energy and daylight simulations completed with DIVA for Grasshopper.

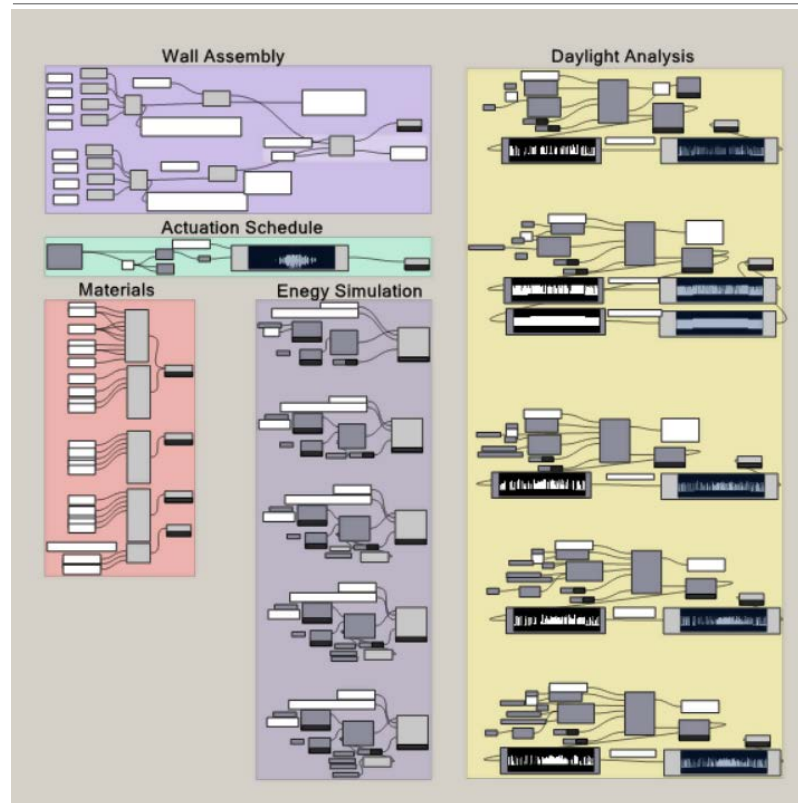


Figure 19. Simulation workflow

Daylight Analysis: In the field of daylight analysis, there several ways to evaluate daylight quality and amount. Each serves a specific purpose and provides different information for assessing the usefulness and strength of daylight in the design of architecture. In this study, I evaluated daylight quality in the Radiance platform using four methods since they provide a comprehensive understanding of daylight quality and characteristics.

1. Daylight autonomy (DA)
2. Continuous daylight autonomy (CDA)
3. Useful daylight Illuminance (UDI)
4. Daylight availability (DAv)

Energy Simulation: Energy simulation is used to that replicate the real-time performance of a building. The analysis illustrates how the thermodynamics in a selected building works in a specific climate region. Understanding the thermodynamics helps designers comprehend the strengths and weakness of a building envelope, enabling them to enhance energy performance. In this research, I assessed energy performance through four types of energy simulation, which provide the require information to understand the thermodynamic behavior, using the EnergyPlus platform:

1. Total ideal cooling energy
2. Total ideal heating energy
3. Total lighting electric energy
4. Total heat gain energy through windows

View Quality Analysis: In LEED v4, view quality credits are achieved with 75% direct sight to the outdoors through the glazing of all

regularly occupied floor areas. The view must provide clear access to the exterior and be unobstructed by frits, fibers, patterned glazing, or added tints that distort the color balance. View obstruction plays a significant role in view quality. In this research, I consider shading devices obstructions to the view since they create a potentially dense pattern on windows. Thus, the percentage of time of obstruction and the obstruction density are calculated.

Base Case

As mentioned earlier, the base case has no shading device system. Figure 20. shows the west elevation of the base case.

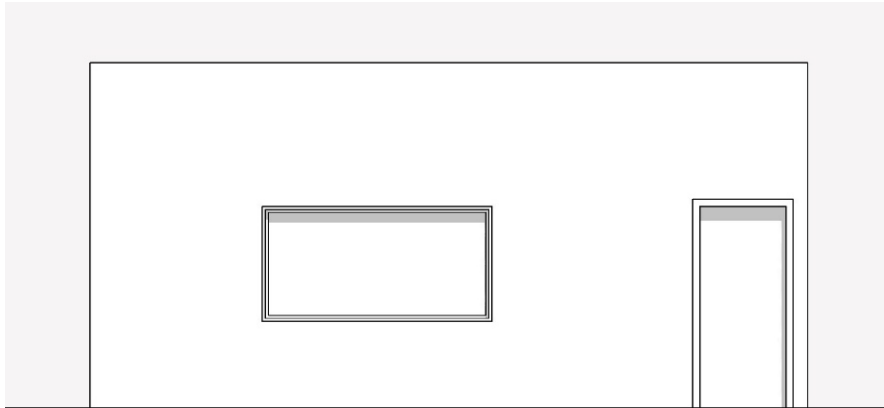


Figure 20. West façade of base case

Daylight Analysis: Figure 21. illustrates the daylight analysis with four study types. The DA and cDA studies demonstrate the amount of daylight over the course of the year and show that the window provides an amount of daylight that meets the 300 Lux criteria for the space. However, the DAv analysis in Figure 21. shows high values for the floor area, indicated in purple, that exceed 10 times the illumination threshold of 3,000 Lux at least 5% of the time, which is mostly due to direct solar radiation. Exposing the interior space to the direct solar radiation potentially creates glare and visual discomfort and can cause the space to overheat in the summer. The UDI study shows that the useful daylight may be inadequate for some specific tasks, but it is sufficient for normal work.

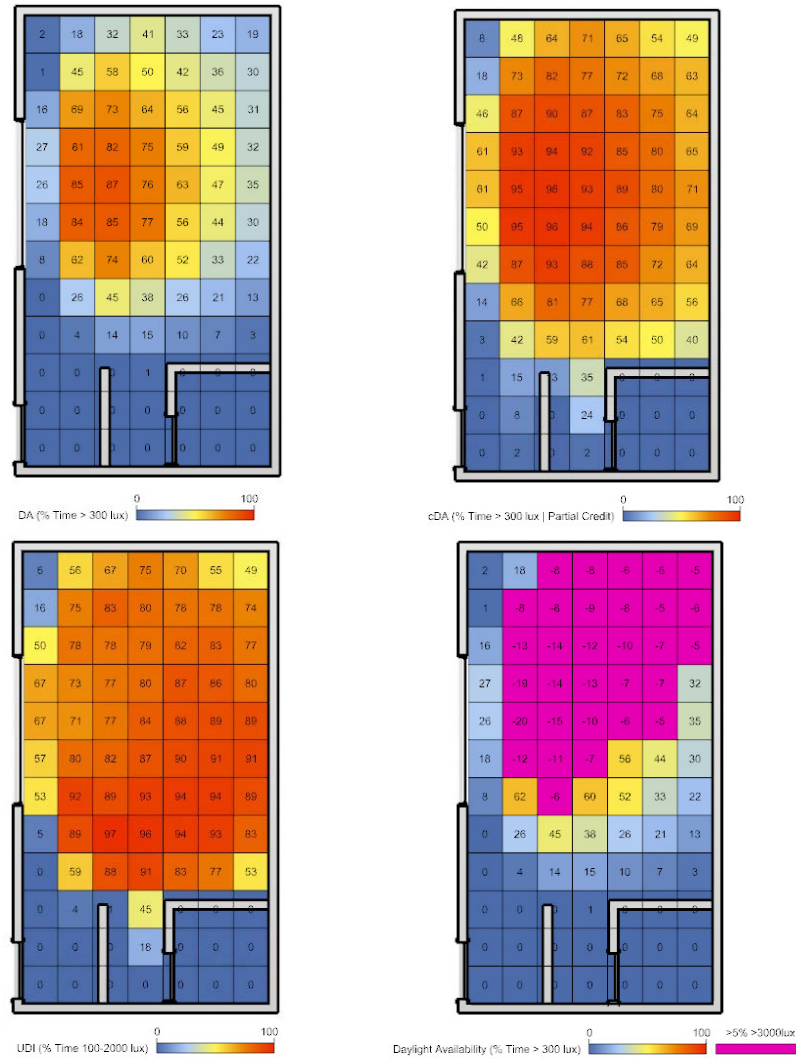


Figure 21. Base case daylight analysis

Energy Simulation: Figure 22. presents the energy simulation for the base case. In this case, cooling energy is a critical factor for energy savings since, as shown in this graph, it accounts for almost 10 times the energy required for heating and lights. The peak of cooling energy demand is in the summer. Demand is increased through heat gain from the window and transmitted solar radiation energy because the window is not protected from solar radiation, exposing the interior to direct heat. Heating energy is not critical in the hot, dry climate in which the base case is located. As shown in the graph, heating energy demand is generally low throughout the year and nonexistent during the summer. Lighting energy demand is quite low in this study since the window provides an adequate amount of natural light, which helps avoid the excessive use of artificial lighting.

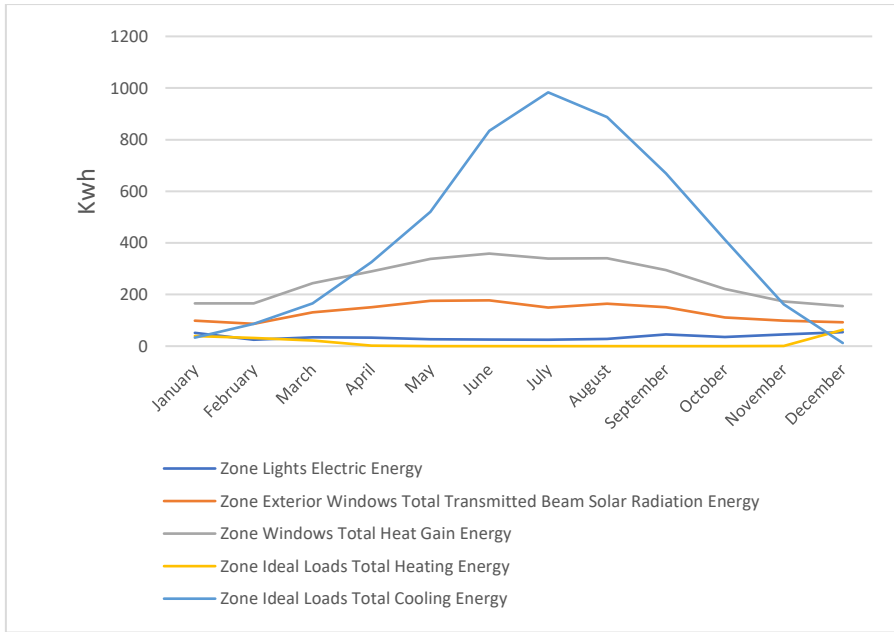


Figure 22. Base Case Energy Simulation

View Quality: The base case has a wonderful view of the outdoors that is unobstructed throughout the year (Figure 23.).



Figure 23. Base Case Energy Simulation

Fixed Shading Case

The fixed shading case has an efficient fixed shading device that protects the window from direct solar radiation during the entire summer. Figure 24. shows the west elevation of the fixed shading case.

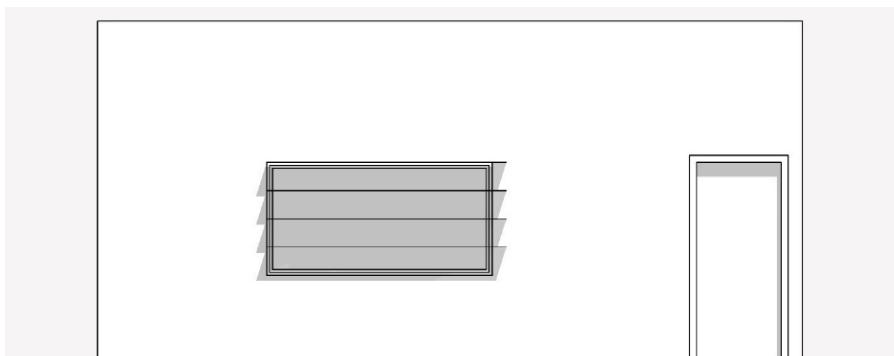


Figure 24. West façade of the fixed shading case

Daylight Analysis: Figure 25. shows the daylight analysis for the fixed shading case. The general trend, as illustrated by the results of the DA

and cDA studies, is an inadequate amount of daylight, as the existing shading device reduces the amount of diffuse and direct natural light that can penetrate to the interior. While it is desirable to block direct radiation to improve energy consumption and visual comfort, as the DAv study shows, the reduction of diffuse daylight causes a decrease in the amount of useful illumination. The results of the UCI study, which has a relatively low threshold of 100 Lux, demonstrate this.

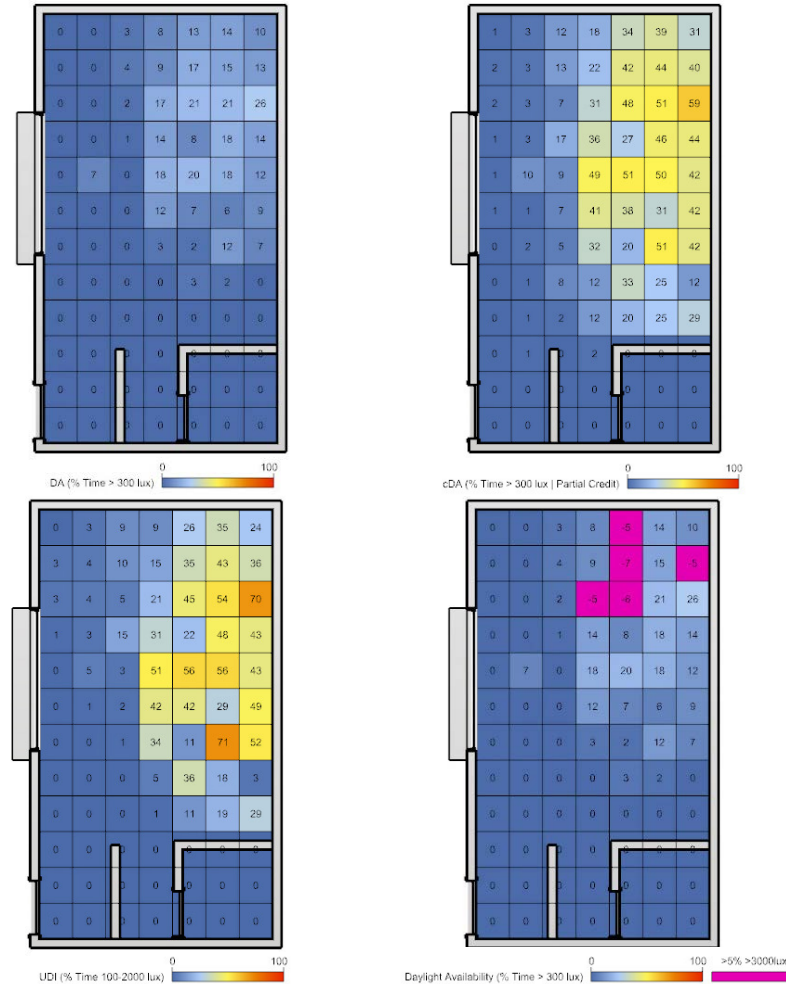


Figure 25. Fixed shading case daylight analysis

Energy Simulation: Figure 26. demonstrates the energy performance of the fixed shading case. As shown in the graph, demand for cooling energy is high compared to other types of energy demand. The shading device decreases cooling demand by blocking the summer solar radiation transmitted to the space and reducing heat gain through the windows. However, the low quality of daylight for the fixed shading case, as discussed in the previous section, affects demand for lighting energy in the energy simulation, as the use of artificial light is increased. The shading device allows winter solar radiation to penetrate the interior, which helps decrease heating energy demand. The graph shows no need for heating energy in the summer and low demand for heating in the winter.

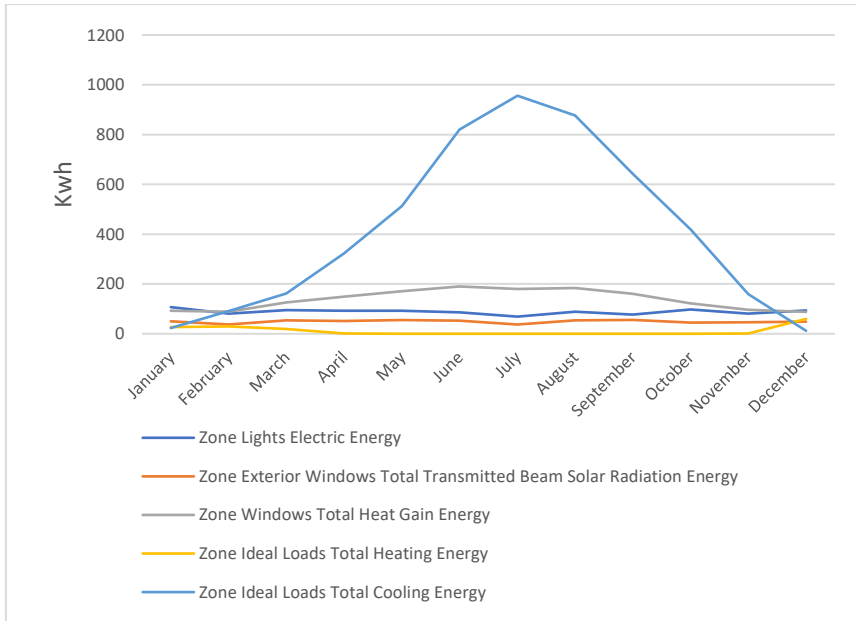


Figure 26. Fixed shading case energy simulation

View Quality: The fixed shading case has a view of the outdoors that is partially obstructed during the course of the year by the shading device (Figure 27).



Figure 27. Interior of the fixed shading case

PDSD System

A PDSD is a dynamic shading system that passively actuates corresponding to the outdoor temperature, as extensively discussed earlier. Figure 28. shows the west elevation of the PDSD case.

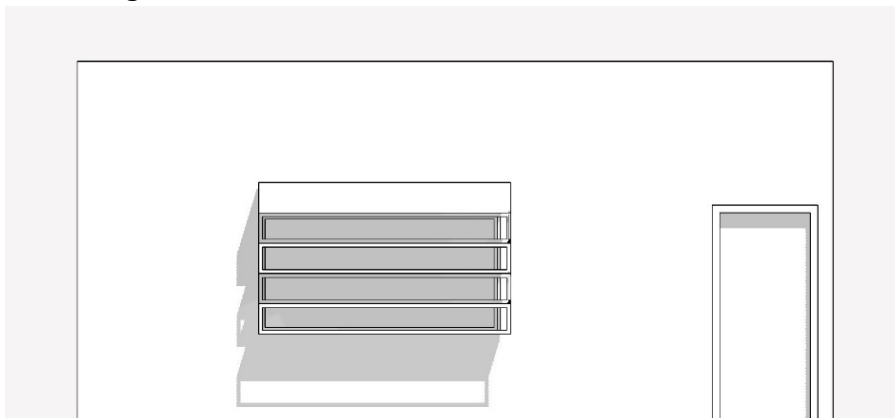


Figure 28. West façade of the PDSD case

Daylight Analysis: Figure 29. elaborates the daylight analysis for the PSDS case. The annual daylight that enters the space is shown by the DA and cDA studies, which indicate adequate daylight over the course of the year in the work area. The PSDS system is beneficial for daylight quality because its dynamic movement allows full penetration of natural light during most of the summer, when direct solar radiation does not interact with the window, and over the entire winter. The DAV study shows the over-lit area in purple, which has low daylight percentage throughout the year. According to the PSDS actuation schedule, there are times during the winter when the system is not operational and thus the over-lit area could cause visual discomfort during this time. However, this will reduce the heating load. The useful illumination in this case is efficient for most of the tasks throughout the year, as illustrated by the UDI analysis.

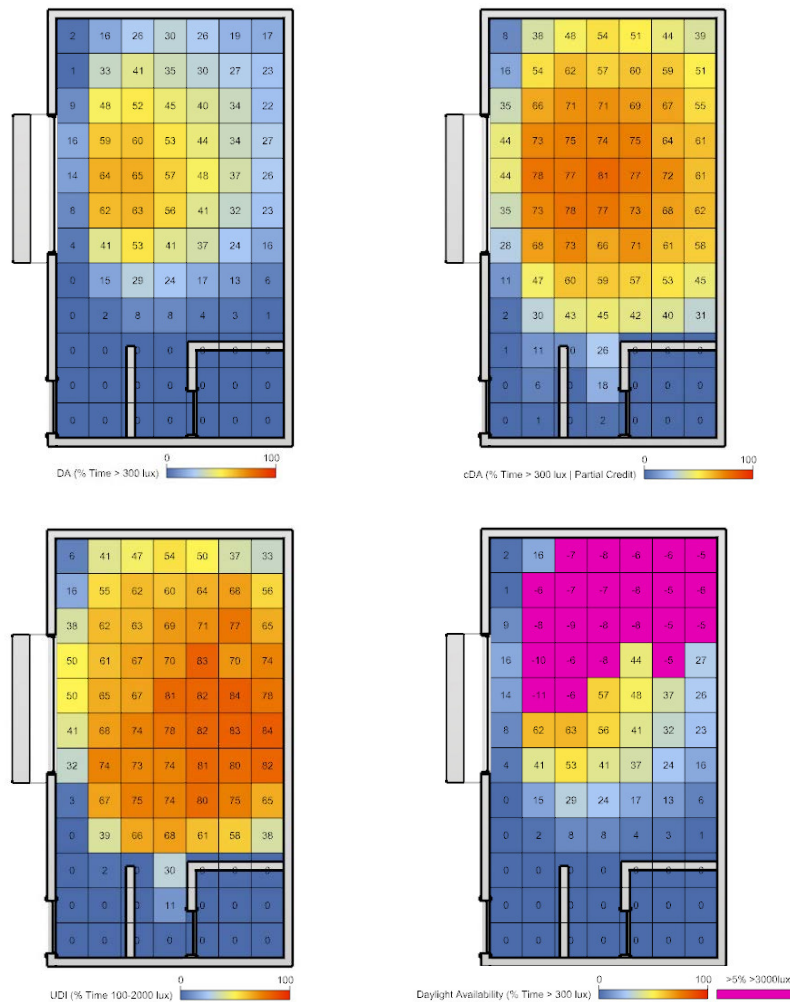


Figure 29. PSDS case daylight analysis

Energy Simulation: Figure 30. illustrates the energy performance of the PSDS case. It shows a cooling energy demand peak in July, as the result of the high energy demand in hot, dry climates. The PSDS improves cooling and heating performance through its dynamic movement since it blocks the direct solar radiation that is transmitted in the summer and allows it to penetrate the building in the winter. This results in a

reduction of heat gain through the window in the summer and an increase in the winter. The daylight quality and amount of the PSDS case reflect positively on the consumption of lighting energy demand since the window provides a decent amount of natural light, decreasing the need to use artificial light. As Figure 30. shows, lighting energy demand is relatively low and steady, which means that the daylight amount generally remains constant throughout the year.

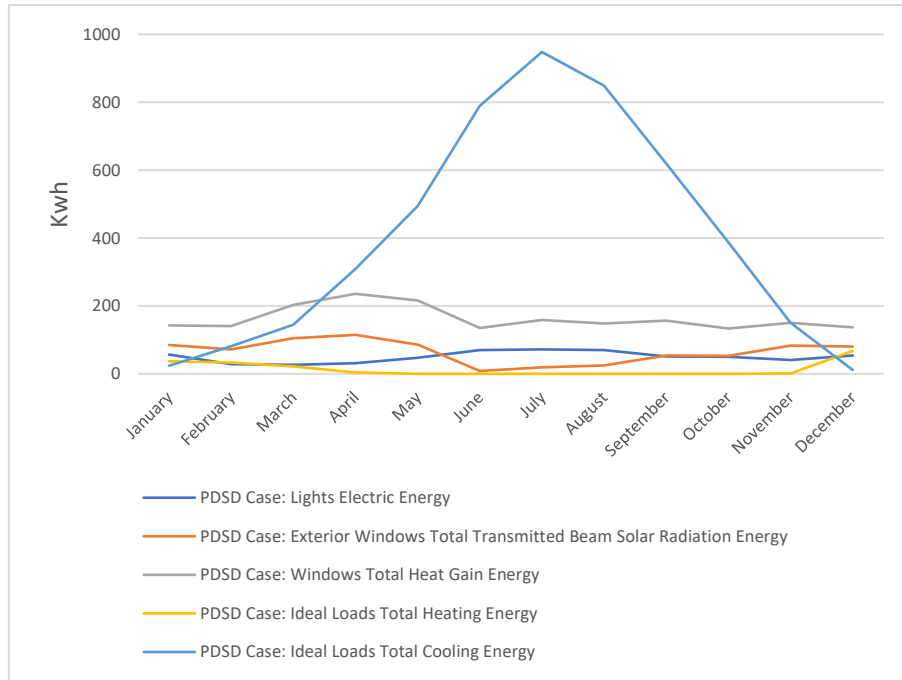


Figure 30. PSDS case energy simulation

View Quality: The PSDS case has a window that provides a partially obstructed view 22% of the year. Mitigation of the time of obstruction is a result of the dynamic movement of the PSDS.



Figure 31. Interior of the PSDS case

Daylight comparison

Daylight comparison namely DA, cDA, UDI, and DAv studies, was conducted for the base case, fixed shading case, and PSDS case. The aim of the comparison was to determine the most efficient case. As Figure 32. shows, the DA values for the base case were high and demonstrated adequate illumination compared to the fixed shading case. However, the PSDS case provided a decent amount of daylight and values relatively

close to those of the base case. The fixed shading case did not provide sufficient daylight for occupants' tasks. The cDA values exhibited the same pattern as the DA values in Figure 33. as well as the UDI rates in Figure 34. The over-lit area in the base case was 40.5% of the total area with a high time percentage, which affected energy performance, as discussed in the following section, especially in the middle of the room and close to the window, as shown in Figure 35. In contrast, the fixed shading case had over-lit area of 6% with a very low time percentage. The over-lit area of the PDSD case was 27.4% of the total area with a low time percentage as direct solar radiation only in the winter is considered.

Figure 32. DA comparison between the three cases

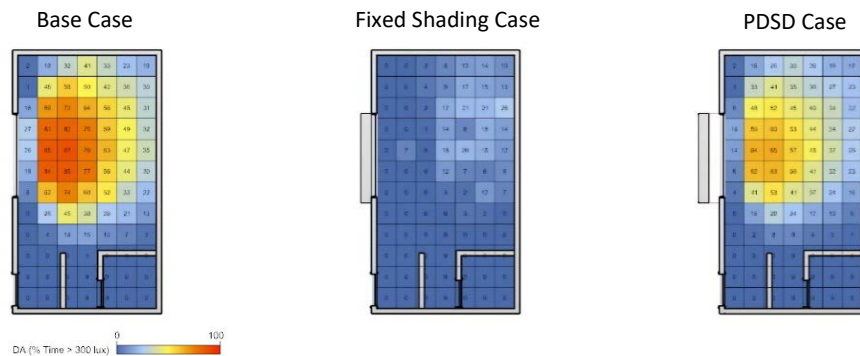


Figure 33. cDA comparison between the three cases

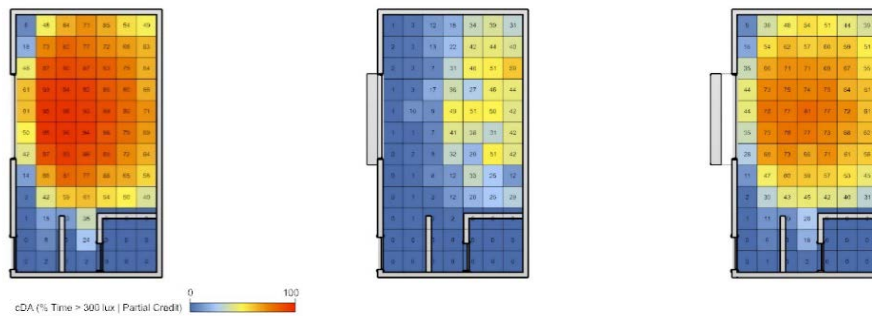


Figure 34. DAv comparison between the three cases

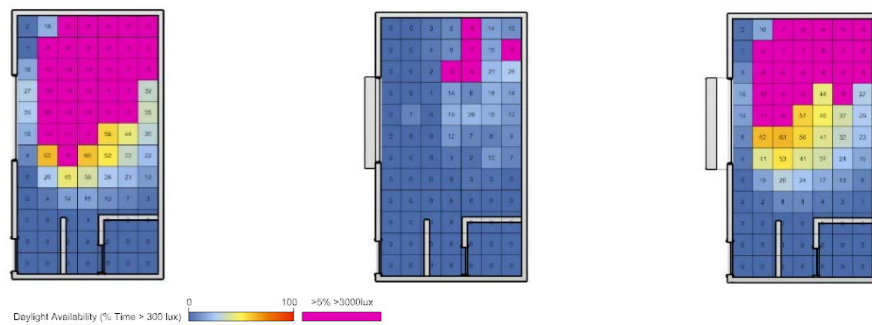
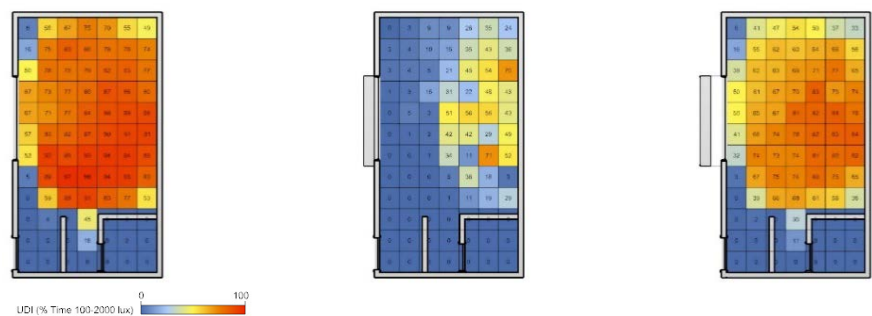


Figure 35. UDI comparison between the three cases





Energy Simulation Comparison

The energy simulation comparison compares the ideal load of cooling and heating energy and lighting energy for the base case, fixed shading case, and PSDS case. The purpose of this comparison is to find the most efficient of the three cases. Figure 36. shows the ideal cooling energy load, which is similar for all three cases in the winter since all of them allow direct radiation to penetrate the building. In the summer, however, there is more differentiation. Peak cooling energy demand is in July. The base case has the highest demand since the interior space is totally exposed to direct solar radiation. The fixed shading case has less demand than the base case, and the PSDS case has the lowest cooling demand since, unlike fixed shading, it reduces daylight, leading to more reliance on artificial lighting, which is a heat source.

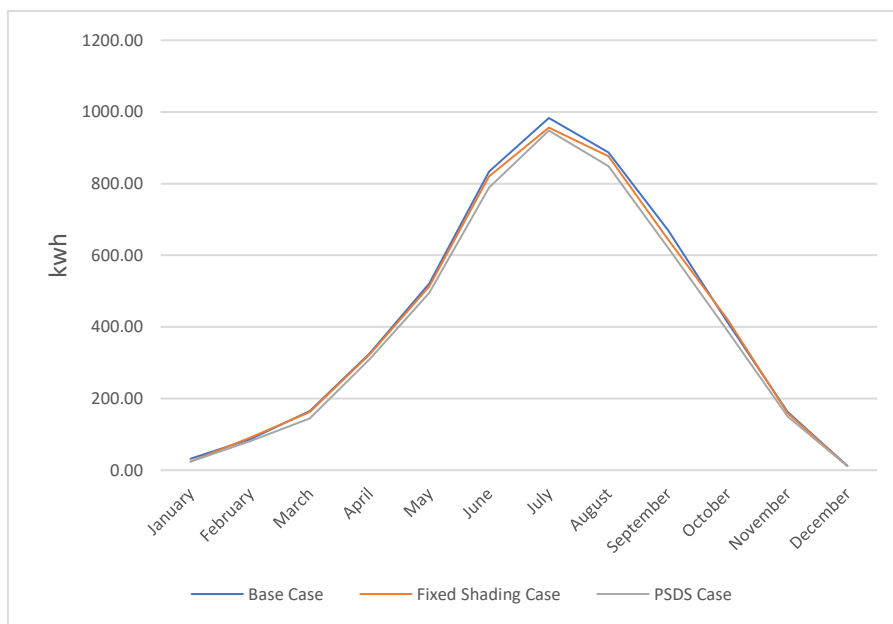


Figure 36. Zone ideal total cooling energy load

Figure 37. presents the ideal heating energy load. Heating demand of the three cases is relatively similar since they all allow solar radiation to heat the interior space in the winter. Figure 38. shows the lighting energy demand. The fixed shading case was the worst among the cases because the presence of shading devices all the time reduces the amount of daylight. The performance of the PSDS case is between that of the base case and the fixed shading case because it dynamically allows adequate daylight in the space.

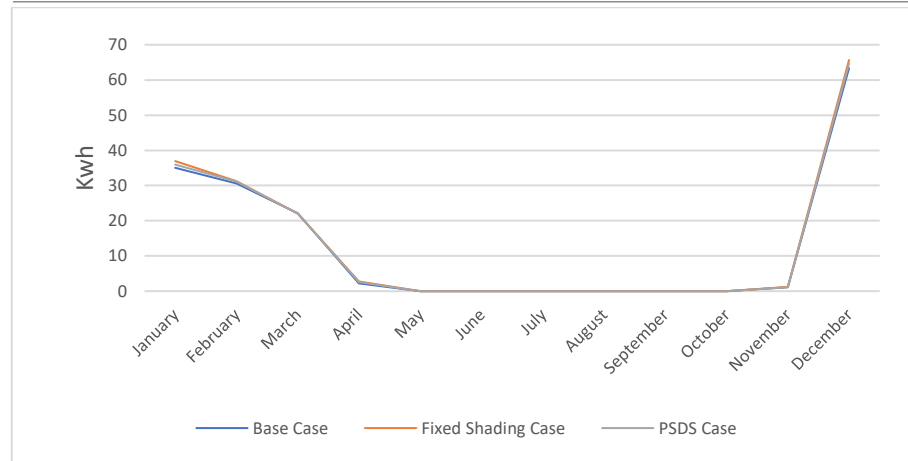


Figure 37. Zone ideal total heating energy load

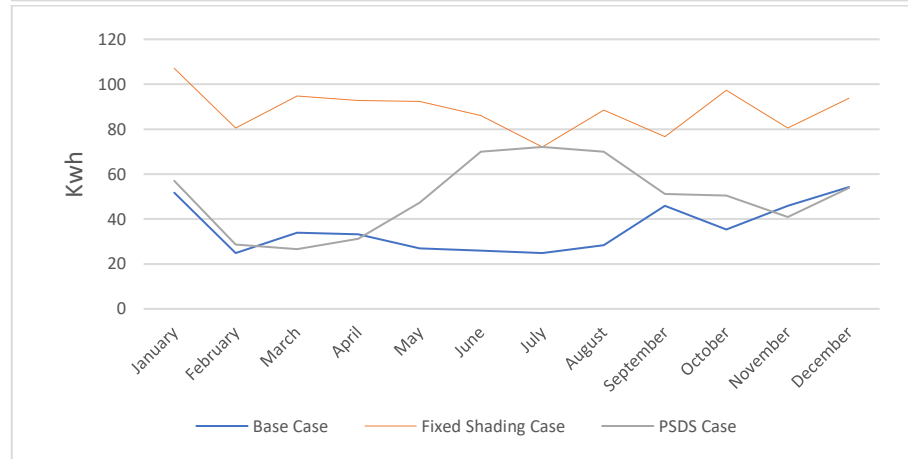


Figure 38. Zone lighting energy demand

View Quality Comparison

The view analysis is based on a logical analysis. The base case has a clear view 100% of the time, the fixed shading case has a partially obstructed view 100% of the time, and the PSDS case has a partially obstructed view 22% of the time.

Base Case



Fixed Shading Case



PDS Case



Figure 39. View quality comparison between base case, fixed shading case, and PDS case

Conclusive comparison

Figure 40. illustrates in detail the quality of daylight and the amount of energy consumption in all cases. It shows energy saving and additional consumption comparing with base case. It describes the view quality with the time rate and obstruction conditions.

Table 3. Conclusive comparison of base case, fixed shading case, and PDS case (by author)

	Base Case	Fixed Shading	PDS
Cooling	5090.91Kwh	-1.8%	-5.55%
Energy		92.35Kwh	282.51Kwh
Heating	158.58Kwh	-7.6%	+3.6%
Energy		12.06Kwh	5.82Kwh
Lighting	431.04Kwh	+146.43%	+38.96%
Energy		631.18Kwh	167.94Kwh
Daylight	26.2%	0%	13.1%

Autonomy			
Over-lit Area of Total Area	40.5% With high time Rate	6% with low time rate	27.4% with low time rate
View Quality	100% of time unobstructed	100% of time partially obstructed	22% of time partially obstructed

CONCLUSION

Energy performance, daylight, and view quality generally contradict each other and thus it is unreasonable to optimize one factor over the other since this would compromise the values. The appropriate solution is to find the right balance between the objectives. In this research, I assessed the thermal performance, daylight, and view quality of three different cases in the same building. Two cases have a distinct type of shading system, and the remaining case has no shading system. The base case has a sufficient amount of daylight throughout the year, but because this includes direct sunlight in both the summer and winter, this can cause visual discomfort. Exposure to direct solar radiation causes a large amount of heat to transfer through the window in the summer, resulting in high cooling demand. However, the view was clear and unobstructed for the base case.

The fixed shading case was highly protected from direct solar radiation in the summer, resulting in low cooling energy consumption. Consumption could be lower, but the heat from artificial lighting contributed to cooling demand. Because the shading device reduced the amount of daylight, reliance on electric lighting was increased. The view was partially obstructed throughout the year.

The PDS case offered the best balance among all the cases. It had the lowest cooling energy demand since it was mostly protected from direct solar radiation in the summer. Further, it had less need for electric lighting than the fixed shading case throughout the year and higher than the base case in summer. This case provided adequate daylight for office tasks throughout the year. While the amount of daylight was lower than the amount for the base case, it was high-quality daylight with only a 22% view obstruction over the year, unlike the base case, which did not receive abundant direct sunlight.

ACKNOWLEDGMENTS

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CONFLICT OF INTEREST

No conflict of interest was declared by the authors

FINANCIAL DISCLOSURE

The authors declared that this study has received no financial support.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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Housing Flexibility: A Framework for a Quantitative Evaluation Method due to Turkish Designers

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Abstract

Purpose

Flexibility became an important factor affecting the quality of housing projects in Turkey nowadays due to the requirement of the permanent mobile/dynamic lifestyle. Thus, a responsive housing design should be developed to allow modifications that respond to the changing demands of the tenants through time. Although it is a major debate in housing design for many years in western countries; the Turkish perspective of housing ignores the adjustment to changing needs and compensates it with big-sized dwellings, causing space consumption. This contradicts with the Turkish roots emerged from the nomadic lifestyle with the tent. Housing flexible design is an essential requirement in Turkish culture historically. This study aims to develop a quantitative evaluation method, in order to assess the level of flexibility, defining the indicators and the hierarchy to measure it.

Design/Methodology/Approach

In order to establish a Flexibility Assessment System, Value Engineering method is applied, a tool used in decision-making process to choose the ideal solutions. Additionally, this system will contribute to the improvement of the “architectural quality of housing” in Turkey, since now it is evaluated and commercialized merely by the calculations of the surface areas.

Findings

Despite that most of the experts have a different understanding and evaluation of flexibility, they concurred on some indicators to measure and evaluate flexibility. Moreover, this study has created a clearer definition of the terminology of flexibility from the point of view of Turkish society and provided basic guidelines for the implementation of flexible housing design.

Research Limitations/Implications

Quantifying a complex design parameter as flexibility using the Value engineering method requires the division and analyse the opinion of expert separately from the end users’ opinion.

Originality/Value

This study is the first study defining the criteria of flexibility, and their quantitative evaluation from Turkish cultural view. Moreover this study creates a more clear definition of the terminology of flexibility from the point of view of Turkish society and provides basic guidelines for the implementation of flexible housing design.

Keywords: Flexibility, housing quality, housing, assessment system, housing design, sustainability

INTRODUCTION

The technological, economic, cultural transformations have impacts on our socio-cultural structures as well as activity patterns. Housing should allow adjustments for various stages of human life due to the changing social and demographic circumstances (Habraken, 2019; Hasgül & Özsoy, 2016; Idrissi, 2006; Schneider & Till, 2016). According to the statistics of Tuik 2011 (Tuik, 2016)(Figure 2), 67% of the householders in Turkey are owners of their houses. This means that they do not consider them as temporary houses, contrarily they plan to live for a long-term in these houses. The social and demographic changes in the people's life, as mentioned in details later, requires the inhabitants to have a high level of flexibility in their houses. These changes in lifestyle have substantial influence on housing design regarding sizes and types. Considering that Turkish societies coming from the nomadic lifestyle, starting with the tent, the Turkish housing design should respond to these changes conveniently. While flexibility is not a real design consideration in Turkey, there are current debates and implications in western societies taking place for a long time. In Turkey, residents do not consider possible interventions when more space is needed, instead they seek big-sized dwellings from the beginning; which is the principle that current Turkish housing design is based on. Most of the houses in Turkey have at least three rooms, and there is no tendency to change those dwellings, even the number of users decreased to two after demographic changes, due to the inflexible houses and mentality of people (Figure 1). This housing perspective ignores the adjustment to changing needs and patterns(Akalin & Yildirim, 2010; Altaş & Özsoy, 1998).

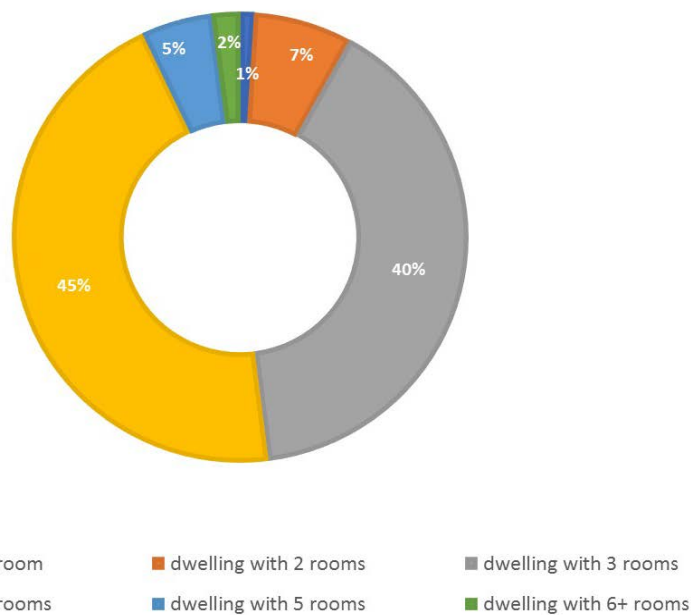


Figure 1. Households by number of rooms in dwellings in 2011 in Turkey (Tuik, 2011)

Moreover, these standard big-size dwellings cause a space consumption. The average number of people per room (including the living room,

except the kitchen, bathroom and toilets) was calculated as 1.1 (Tuik, 2016). Comparing this value with European countries, it is an unsustainable result related to the ecological footprint when considering the change in the number of users in the dwelling. Architects have to shed light on this tendency because it contradicts with the concept of sustainability that aims to reduce damage and footprint on the environment (Kendall, 1999; Mahdavinejad et al., 2012; Sposito, 2012). In order to create a shift from an understanding which forces people to adapt to the predefined housing structures, to the demonstration of a housing design that provides freedom to change living spaces through its adaptation and flexibility.

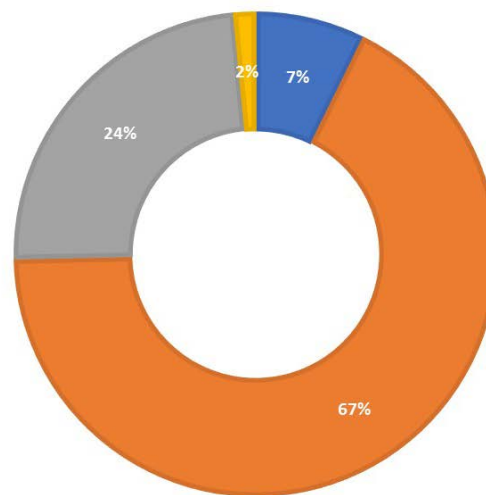


Figure 2. Property status of households in housing (Tuik, 2011)

■ not owner but not paying rent ■ house owner ■ renter ■ lodgement

Accompanied with different typologies, flexibility provides the adaptability to the changing circumstances; which provides the possibility of various modifications of houses. This enables a more flexible lifestyle instead of today's fixed housing units that forces people to change their habits/rituals and adapt themselves to the building forms (Schneider & Till, 2005). It is observed that the importance of the size/number of rooms in the residential units increases. Correspondingly, architectural practices in cities pursue quantity instead of quality, which flexibility contributes. On one hand, this minimizes architectural quality, and on the other hand, it hinders the upholding of environmental values and sustainable approaches. Minimising the sizes of dwellings with smart solutions, which is possible with flexible design, reduces our carbon footprint and the damage to environment coming from the construction boom (NJ, 2009). These smart solutions are related to flexibility, because the expression of efficiency for a functional planning can be successful if it is capable of enduring through time. Flexibility is more than false neutrality, as Forty described, and should be

combined with concepts such as participation, sustainability, efficiency of planning etc. (Forty, 2002; Kendall, 1999; Mahdavinejad et al., 2012).

Although there are some studies related to flexibility of buildings, the assessment of flexibility and the relation of socio-cultural backgrounds and housing conditions forms gaps in these researches (Estaji, 2017). Because of the importance and benefit of flexible design, this study aims to create a guideline for the design of the flexible housing in different scales by determining the indicators and the hierarchy between them quantitatively. This reveals the potentials for the implications of flexible housing. Value assessment of flexibility in housing provides also awareness and base for practical goals (Van der Voordt & Van Wegen, 2005). This understanding leads to the interpretation of the evaluation results into clear definition and rating of the criteria of a complex decision-making process. The previous quantitative assessments of flexibility are either global, ignoring the perspective of culture, or developed qualitatively and partially lacking the holistic view of flexibility as discussed later in details (Hasgül & Özsoy, 2016; Idrissi, 2006; İSLAMOĞLU & USTA, 2018; Moharram, 1998; Rajan et al., 2003). Hence, the authors think that this study demonstrates an approach which provides both a holistic view with a local cultural character of the assessment of flexible housing.

LITERATURE REVIEW

a. Definitions of Flexibility

Flexibility means the easy adjustability of an aspect of a system (Fricke & Schulz, 2005). In this system, different changes can be realised in any time cost-effectively in order to respond to the changing requirements at different times (Saleh et al., 2003). Flexibility is a crucial parameter in architectural design especially in the field of housing. Because of the complexity and variability of the relationship between users and spaces in residential areas, the response to the changing needs of the tenants is a key factor for life quality (Van der Voordt & Van Wegen, 2005; Zivkovic & Jovanovic, 2012). According to Rapoport, physical elements are more important than creating visual and cultural categories, so it makes sense if they provide an engagement with user schemes (Rapoport, 1982). Moreover, behaviour-adaptation theories investigate the dual adaptation between space and user. Behavioural differences for change link the environment and behaviour (Altman & Wohlwill, 2012; Habraken, 2019; Hasgül & Özsoy, 2016; Till & Schneider, 2005). That means the harmony and adaptation between the space and user has a great importance for the social quality.

Flexibility in housing design provides tenants with the possibility of adaptation according to the changes, while providing architects with the vision of the future scenarios of their designs. The designing process is very important for flexibility. The Austrian architect Ottokar Uhl describes this importance indicating that the success of an architect is not

just by deciding the form, but also by the close relation with the processes of designing and building (Steger, n.d.).

There are many social and design quality reasons, but another motivation for flexibility is the economic benefits in long term. There is few data about this argument, but qualitative studies reveal that if the technology, strategies and spatial principles of flexibility are applied, the buildings in turn will sustain longer and provide cost savings (Cristiana Cellucci & Michele Di Sivo, 2015; Schneider & Till, 2005; Slaughter, 2001; Zairul & Geraedts, 2015). Moreover, according to the studies related with long life costs (LLC), the spatial adaptability and flexibility implementations have a positive effect increasing user satisfaction (Altaş & Özsoy, 1998; CABE, 2004; Uhl, 1981). Consequently, the justifications for flexibility importance can be classified into different reasons, mainly derived from Users, Environment, Social, Cultural and the constructive resources as follows:

1. Users: when discussing flexibility with final users of housing projects; their main reasoning for the need of flexibility were firstly, **Function**, due to the changing requirements through time related with function (Habraken, 2019; Stephen & Jonathan, 2010; Till & Schneider, 2005). In addition, the need to maximise the efficient use of the space. Secondly, **Physical need**, with the changes of physical conditions of users in time, such as limited mobility for getting older, some accidents... Flexibility allows the modifications for the new needs (Hasgül & Özsoy, 2016; Rabeneck et al., 1974). Thirdly, **the change of user**, different requirements are created when a new user is moving in, which directly refer to flexibility.

2. Environment: with the challenges created by **Climate Change**, flexibility is needed more than ever. Especially with the **change of seasons'** cycle; which induces other conditions. Turkey is a country that has a seasonal heat difference amongst different regions, and generally, the construction type applied over Turkey does not tackle this factor effectively. Huge amount of energy consumed for heating in winter and cooling in summer due to the lack of design precautions. The design flexibility may contribute to tackle this problem.

3. Social factors, which are beside the structural factors, are the main reasons that make flexibility an important parameter of architectural design in Turkish society. This includes different sub-factors such as **Family size**, since the expansion of families through time needs extra rooms, and the separation of males and females is an important criterion in Turkish community. After the growth of the family members, they leave the house and the number of the family decreases, which results in less space/room need. Flexible design would be a solution to avoid moving out, or occupying more space than needed. Another important factor is the **Cultural background**, in Turkey there is a mobile family structure. There are still families living as one big family with parents and grandparents. According to the housing conditions, they may keep on

living together, or forced to live separately. Moreover, old people in late stage of their lives, move to their children' houses in some cases, because of their disabilities or need for care. Thus, flexibility would be a solution for the efficient use of space during the different changes and different periods of family life. Additionally, the social relations and statues play a role in flexibility needed, because the change in social status motivates people to make changes and upgrade living spaces.

4. Building (Infrastructure): Usually the developments in **technology** and new techniques stimulate people to make changes in their accomodation. Besides the updating needs, buildings need periodic **Maintenance**, due to building degradations in time. This sometimes also leads to **Upgrading** the building to be smarter and responds to the upgrading of social positions of people, in order to reflect the new social image of the users. Flexible designs contribute to make this process more feasible.

Despite the fact that flexibility is the adaptability to the changing requirements and patterns of users across time, this definition is very broad and complex which cannot be easily comprehended. Housing flexibility is defined as both being capable of choices regarding construction and social characteristics and responding to the changes during different life stages of the building (Schneider & Till, 2005). Consequently, this kind of housing ensures multifunctional use of space, changeability and chance for configurations for the most appropriate and convenient preferences due to the participation in the design phase (Groak, 2002; Rabeneck et al., 1974). Various alternative interpretations can be derived respecting the provided creative borders (Koolhaas, 1998). Herman Hertzberger indicates that "We must continuously search for archetypal forms which, because they can be associated with multiple meanings, can not only absorb a programme but can also generate one" (Hertzberger, 1991).

In modern architecture, open plan type has been accepted as one of the prominent ways of flexible housing design. However, this neutrality is discussed whether it has been a limit for the architectural design. According to Adrian Forty the neutrality in design is overemphasized; because he thinks that if a glove can fit to all hands, therefore it becomes no hand (Forty, 2002). Although neutrality as a type of providing flexibility criticised with the absence of identity and lack of distinctive features of the building type, flexibility in housing, which can be provided with various applications in design, is an important and needed requirement in today's mobile lifestyles. Flexibility has been a real concern after the 1950s in Europe, and the ways for achieving it has been comprehensively discussed. These multiple methods including revisions can also provide a base for the argument of flexibility in Turkish housing. The polyvalence of a space, producing optimal solutions by providing various scenarios with little interventions in the form, is important for the Turkish society coming from nomadic lifestyle. Moreover, the separation

of space with movable partitions and furniture, which provides a conversion in the space, already exists in the generic corollary of the environment (Venturi, 1977). The most prominent approaches of creating flexibility in housing are neutralisation and indetermination of space, inclusion of independent and modular elements, creating permanent or contemporary units with divisions, implementation of portable/adjustable furniture, creating a hierarchy and relation among spaces, efficient solution of service and technical areas (De Paris & Lopes, 2018).

Consequently, there are different methods of achieving flexibility which means considering long term thinking (Cristiana Cellucci & Michele Di Sivo, 2015). Till and Schneider indicates that flexible housing should provide choice in terms of social use and construction both at the design stage and during its lifetime. In order to provide flexibility during the lifetime, the consideration in the design phase is an important criterion (Schneider & Till, 2016). For this reason, it is crucial to determine the principles or criteria that facilitates flexibility. If it is possible to analyse the degree of flexibility in planning, this may guide the planners for a flexible design too.

b. Measurement of Flexibility

Analysing and defining the value of design concepts, such as flexibility, has always been a complex process due to various indicators. The studies to quantify the evaluation of flexibility in housing design are few, most of the studies are qualitative and descriptive rather quantitative. Moreover, these studies are not performed in Turkey analysing Turkish housing design, as came to our knowledge. On the other hand, value is a subjective term and changes according to the background, needs, culture and preferences of different societies. Leung describes the solution of this complexity with the model of value management towards a behavioural paradigm. Concept of value has been defined according to the theoretical context such as needs, beliefs, attitudes and preferences. Number of alternatives have been described for the decision process (Leung & Liu, 2003). With the help of this value management, the objectives' expectations of the clients are better-satisfied (Connaughton & Green, 1996; Male et al., 1998). Most of the conflicts are stimulated and solved with a decision-making process including value specificity and formation of these values into goals (Leung & Liu, 2003).

To assess the flexibility, it is important to define the principles of flexibility. There have been many attempts to describe these principles. Stamm suggested a system of structural and design principles for the post occupants or multi-usability, which assumes walls as furniture (Beisi, 1995). Technology is an important element providing services of configuration for flexibility. According to Habraken and the Open Building movement in modernism, the use of modern construction techniques and

prefabricated elements provides flexibility (Stephen & Jonathan, 2010). Frame structures were introduced as the most adequate form of construction allowing the change over time (Schneider & Till, 2016). Nevertheless, many other parameters affect the degree of flexibility. The additional elements, which help to divide the space, also configure the flexibility of the space. The design of Günther Domenig in Graz is an example of an inflexible housing despite its potential and consideration for flexibility (Domenig, 1991). The problem was the complexity of the geometries, which restricted the change since its construction. That means there are different dimensions of flexibility that should be considered as a whole.

In order to make principles of flexibility more concrete, there are several studies for the assessment of flexible housing. Kiaee et al. measures the flexibility of the housing spatial system, using the space syntax in different patterns in Qazvin (Kiaee et al., 2019). Although this method is based on analytical and logical methods, it focuses on spatial arrangement methods using visual connectivity, permeability and circulation that lacks the consideration of materiality and structural constructional indicators. Another quantitative study about flexible housing on chosen case studies in Morocco by (Idrissi, 2006) was conducted. This study includes an index based on the functional area of the cases after the alterations made by users. Rajan et al. explained a clear ranking system to evaluate flexibility in their paper "Design for flexibility- measures and guidelines", which suggests design guidelines for the flexible design in Swedish society (Rajan et al., 2003).

In Turkey, (Nal & Ünlü, 2009) conducted research about flexibility provided by an open plan system focusing on constructional features of permanent houses in Düzce. Another study aiming for a decision making process in housing based on the preferences of the tenants is the research of (Koman & Eren, 2010), which is based on different usage of space related with the dimensions of the dwelling units and number of occupants. Both studies demonstrate the layout differentiations regarding participation and focus on just one part of flexibility: plan diversity and adaptability.

Özsoy and Hasgül developed a design matrix, which is more a qualitative discussion on different housing typologies about flexibility, provided a comparison of the selected projects hierarchically and defined three levels of flexibility degree (Hasgül & Özsoy, 2016). Another evaluation system is the study of Altas and Özsoy that is an assessment based on the frequency of responses of tenants adaptability which doesn't include a multifactorial analysis (Altaş & Özsoy, 1998).

These evaluation systems lack a holistic approach that considers all of the indicators together and evaluates them quantitatively. It is also important

to understand the hierarchy between these indicators in order to ensure a flexible housing design.

In this context, flexibility is assumed as a quality in the designing and building process in this study. It is possible to assess this quality in a quantitative way with decision-making tools. Providing housing flexibility, which demonstrates adaptation to the changing requirements of the tenants in several phases of their life, contributes to the improvement of the “architectural quality of housing” in Turkey in a wider sense, which is evaluated and commercialized merely according to the calculations of surface areas.

The Indicators of an Evaluation System for Flexibility in Turkish Housing Design (Evaluation for Housing Flexibility -EHF) on Unit and Building Scale

From the literature review, interviews with experts of architectural design in Turkey and analysing them, the authors suggest the following three criteria and their sub criteria to assess flexibility from the Turkish cultural and social point of view.

1. Adaptability: According to (Schneider & Till, 2005) adaptability is the design of the space so that it can be used in different ways and it covers “polyvalence” which is described especially by Dutch theorists as the capability of space that ensures multiple ways of different implementations usually applied without physical interventions. Moharram indicates that adaptability provides the ability of individual modifications to adjust new conditions and covers internal changes such as subdivision and the combination of spaces. Moreover, adaptability is the adjustability of space, which ensures the general target of a group instead of a particular target. If a space is adjustable/adaptable, it is designed in such a way that allows easy and cheap adaptation for people with disabilities or different needs when required (Van der Voordt & Van Wegen, 2005). As a result, adaptability is the easy adjustability of space according to changing conditions and requirements, which also includes open plan design.

Although some architects classify flexibility and adaptability as different criteria, adaptability is embedded in flexibility and is accepted as a method for flexibility in this study. The suggested sub criteria of adaptability are:

- 1.1. Furniture: If different furnishing were possible in the space, the space would be adaptable for different needs.
- 1.2. Proportion: Proportion of the room size decides the grade of adaptability. For example; while a narrow and long room is difficult to be adapted for different uses of space, a better proportioned/size balanced room, closer to square shape, contributes better to adaptability.
- 1.3. Neutrality (form): Neutrality of the form that allows a certain indeterminacy also allows a better adaptation of the space for different conditions while determinant forms allow it less.

1.4. Architectural components: Availability of architectural components creating partition or combination of spaces easily when needed, such as sliding doors etc., contributes to adaptability.

1.5. Adding/removing: Capability of adding/removing elements in the space when needed provides adaptability of space. (For instance; Adding a lift when needed, or creating space for prams when needed)

2. Multifunctionality: The space Multifunctionality is defined as being suitable for different functions without making changes to the structures of built-in features (Van der Voordt & Van Wegen, 2005). Moharram describes multifunctionality with the term of 'versatility' and relates it with two variables; space and time (Moharram, 1998). Multifunctionality is referred to space, which is used for several functions at the same time or for different functions at several times. This covers the neutral function of the room. This type of flexibility is the most practical available way of flexibility. It is not usual for the structure and construction technology to be flexible. The suggested sub criteria of multifunctionality are:

2.1. Neutrality (No function): Undetermined functions of the rooms allow more flexibility.

2.2. Furniture (different functions): Movable furniture supporting different functions of the space contribute to multifunctionality of rooms.

3. Variability: It is the capacity for the extension and contraction of space. It allows changes to be made to size/dimensions, form, location etc. (Van der Voordt & Van Wegen, 2005). It can be described as the usage of the potential of the space with some interventions. When compared with adaptability, variability requires more structural, formal, and hard applications. According to (Till & Schneider, 2005), 'soft' represents implementations providing a certain indeterminacy and 'hard' represents elements which specifically determine the potential of the spaces in the future. The sub criteria of variability are described as follows:

3.1. Opening of the walls: The more opening letting the light into the room, the more efficient the area used and different functions allowed.

3.2. Shape of circulation: The shape of circulation routes (linear or square/rectangular) affects variability.

3.2.1. Unit scale (linear or square / rectangular)

3.2.2. Building scale (walk up type with 2, 4 or more units or single/double corridor type)

3.3. Versatility/Modification (extension-contraction): It is important that the dwelling/building plan convenient to make extension and contraction to achieve modifications in sizes. A neutral plan or neutral access with respect to the equipment and size of the rooms contributes to versatility.

4. Structure and construction

There is a strong reciprocity between construction techniques and flexibility, and most of the housing schemes are built with simple and

robust construction techniques in order to provide the possibility of future intervention (Schneider & Till, 2005). The arrangement of columns and load bearing walls is very crucial to obtain an efficient space that allows possible changes in the future. The skeleton construction system with non-load bearing walls provides an independent and flexible plan (Darke, 1982; Dirisamer et al., 1976; Rabeneck et al., 1974). The open space introduced by early Modernism provided larger spaces including light partitions due to the new constructional systems. The arrangement of the technical installations such as clean/dirty water, heating system etc. have also an important influence on housing flexibility (Zairul & Geraedts, 2015). The Residential Open Building idea also derived mostly from the technical achievements with accompanying design (Stephen & Jonathan, 2010). For a flexible design, it is important to establish a specialised categorisation of construction layers like services, structure, envelope, internal partitions etc. (Habracken, 2019).

4.1. Position of wet spaces: Position of wet spaces affects other places is crucial for the use of space. The accumulation or smart solution of wet spaces in the plan affects the potential flexibility.

4.2. Type of load bearing system (masonry/skeleton): Skeleton system is accepted as more flexible because the system allows modifications in space.

4.3. Divisions (flexibility): The character and positions of the divisions of the units, such as separation of load-bearers from inbuilt elements, usage of demountable walls, and the general grid size of the shell, influence flexibility.

4.4. Material: The material of vertical divisions is crucial for flexibility. The capability of these materials to be easily retrofit or moved decides the potentials of flexibility.

4.5. Technical services (fire, escape, electricity): Position and location of technical services and their radius of influence might limit flexible design and configuration.

Table 1 summarizes all the criteria and sub-criteria analysed in the paper:

Table 1: Suggested Criteria and sub criteria for the assessment of flexibility value

Criteria N.	Main Criteria	Sub Criteria				
		Furniture	Proportion	Neutrality	Architectural components	Adding/ Removing
1	Adaptability	Furniture	Proportion	Neutrality	Architectural components	Adding/ Removing
2	Multifunctionality	Neutrality	Furniture			



3	Variability	Opening	Model of circulation	Versatility/Modification		
4	Structure & construction	Position of wet spaces	load bearing system	Divisions	Materials	Technical services

RESEARCH METHOD

This paper suggests a multi-criteria methodology for the assessment and evaluation of the flexibility in the designs of Turkish housing projects. Targeting the decrease of life cycle cost of housing by decreasing and easing the modifications needed by the user, through the implementation of systematic structure of Value Engineering (VE).

Since VE is controlling the triangle vertices of management including performance, quality and cost, enhancing the value of any will increase the value of the others. While one allows the identification of where cost reduction could be achieved, the other shows the targets to be achieved to guarantee the long-term profitability plan of a design. In order to do that, an assessment system was developed, with the application of the VE procedures at four subsequent levels: Adaptability, Multifunctionality, Variability, Structure and construction. VE is applied in order to contribute to conclude on the right decisions for the targeted purposes. (Connaughton & Green, 1996; Male et al., 1998). A value engineering study includes three stages (see Figure 3)

A pre study stage, where the data is collected through a literature review and interviews with both experts and users, in order to define the needs and model the system. The authors, in the aforementioned chapters, have applied to define flexibility and its criteria in Turkish culture and society. In this paper, it will be defined mainly according to experts in the field, architects, planners and designers. A future study will define the criteria from the user’s point of view, to understand the compatibility and mutual understanding between the user's needs and the designer's understanding.

The VE stage is a workshop where the information is introduced to the evaluators, to analyse the functions, mainly to define the parameters, which control our assessment of a *flexible design*. This is the stage developed, analysed and presented particularly in this paper.

The post study stage where the results are presented, and the Assessment system is implemented to different case studies, which will be presented in future studies.

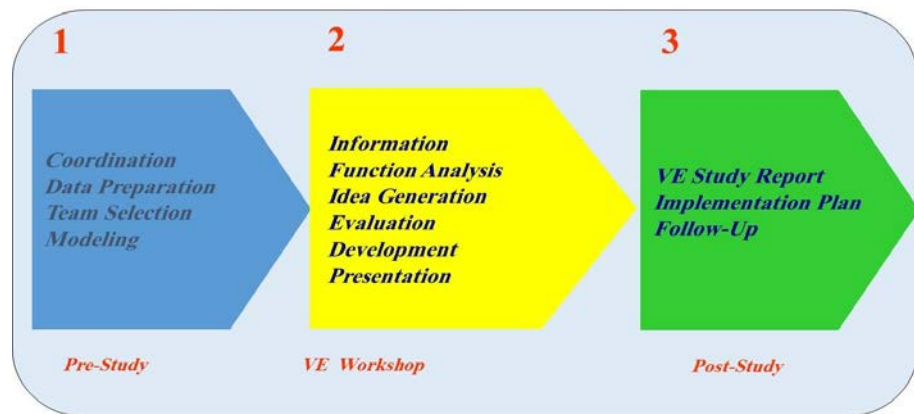


Figure 3. Three main Stages of VE

A job plan of the VE stage involves seven phases for transforming assigned specific values (from the client) to (participatively set) specific goals (Figure4)

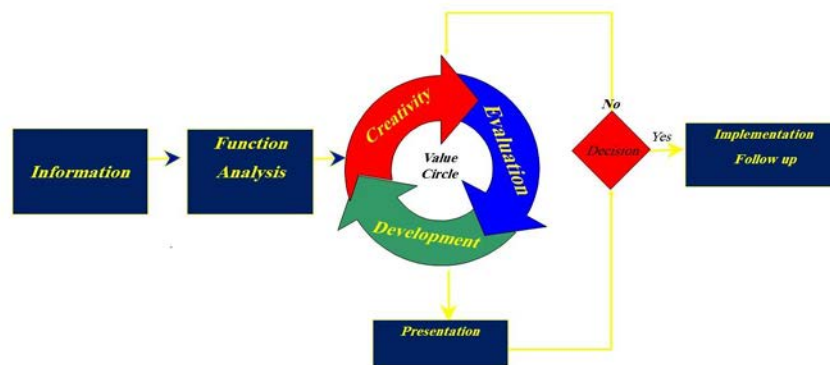


Figure 4. Several phases of VE from the collection of information to the implementation

After the collection of the information from different resources, interviews and analysis, the definition of Flexibility and the important factors and concepts of architectural design affecting and controlling its level, are determined.

Then a function analysis is applied. VE method calculates the value of each indicator asking a group of experts to compare the suggested criteria reciprocally. Using the following logic Comparing Criteria **A** with **B**: If **A** is **X** times more important than **B** = (**XA**) ,

If **A** is equally important as **B** = (**AB**),

If **B** is **X** times more important than **A**= (**XB**)

The number of times for each criterion repetition, is summed, and the medium of the different experts ranking is calculated

Value of $A = \frac{\sum XA}{N.experts}$. This will define the value of **Functions** in the System. When it is implemented to measure the flexibility of a house design, the ranking will be given by evaluators for each indicator as: 5= excellent, 4= very good, 3= good, 2= fair, 1=poor, thus the value of **Quality** will be defined. Subsequently, each design will have its value of Flexibility by applying the formula:

Value= (Function*Quality) /Cost, noticing that the cost is calculated for the desired modifications and adjustments when needed, a higher cost will result in lower value of flexibility.

Finally, the authors will analyse the results of the experts' evaluation, in order to develop the assessment model to be more realistic and applicable according to the Turkish context.

RESULTS AND DISCUSION

The forms of evaluation were distributed and explained to a group of active experts in Architectural design considering Turkish culture. The set was made of 10 experts active in design and planning in Turkish community for 10 years at least. In January 2020, they have filled the forms according to the methodology explained according value engineering assessment, and the authors gathered the results and calculated the medium of the results out of 10. The results of each set of criteria are presented in the following tables. Accordingly, the general criteria assessment was calculated. Table 7 shows each criteria and sub criteria values as the result calculated following the explained methodology.

Table 2: Ranking results of “adaptability” sub criteria

Furniture	Proportion	Neutrality	Architectural components	Adding/ Removing
1	9	8	9	10
0.81	6.45	6.06	6.78	7.17

Table 3: Ranking results of “multifunctionality” sub criteria

Neutrality	Furniture
10	6
7.77	5

Table 4: Ranking results of “variability” sub criteria

Opening	Model of circulation	Versatility/Modification
4	10	8
2.96	7.96	6.29

Table 5: Ranking results of “structure and construction” sub criteria

Position of wet spaces	load bearing system	Divisions	Materials	Technical services
6	10	2	4	4
5.54	10	2.11	3.61	3.85

Table 6: Ranking results of the main criteria of flexibility

Adaptability	Multifunctionality	Variability	Structure and construction
7	4	3	10
6.99	4.10	3.13	9.44

Table 7: Calculated value of importance of each criteria and sub-criteria

Criteria N.	Main Criteria		Sub Criteria									
	C.	V.	C.	V.	C.	V.	C.	V.	C.	V.	C.	V.
1	Adaptability	7	Furniture	1	Proportion	9	Neutrality	8	Architectural components	9	Adding/	10
2	Multifunctionality	4	Neutrality	10	Furniture	6						
3	Variability	3	Opening	4	Model of circulation	10	Versatility/Modification	8				
4	Structure and construction	10	Position of	6	load bearing system	10	Divisions	2	Materials	4	Technical	4

When reviewing the results of the assessment, it is noticed that experts find “structure and construction” the most important factor, which controls and defines the flexibility of an architectural project design. Since the structural elements limit the possibility of any future modification and adaptation, it got the highest score. While “Adaptability” came as the second indicator, which seems logical since the whole aim of flexibility is the possibility of adaptation of the design according to the user’s needs. Third comes “multifunctionality” which had a low score, almost equal to the fourth indicator of “variability”. This raises some questions since the discussion with final users gave the impression that in Turkish culture multifunctionality is highly evaluated. This shows the difference understanding and evaluation of flexibility between designers and users, so it is of paramount importance to present the same assessment system to regular users to evaluate and compare the results, which the authors has already planned as a future work of this research.

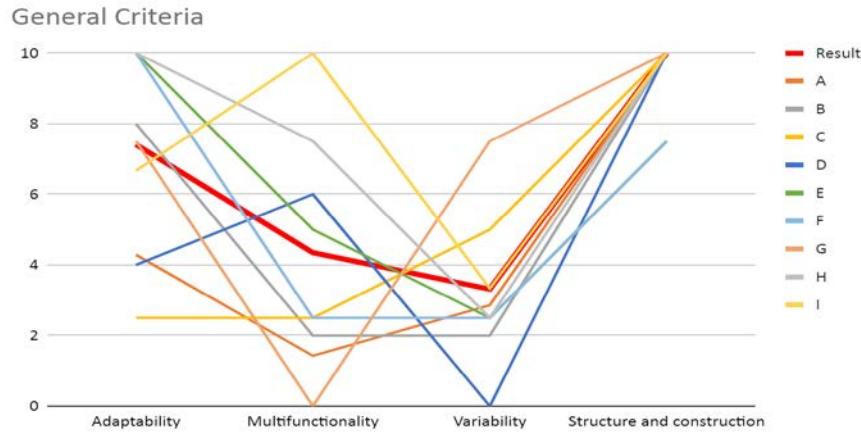


Figure 5. Comparison of the flexibility main indicators relating different experts to the total evaluation

Although the main criteria shows the importance of structure, in the values of its sub criteria we notice that the load bearing systems were the most prominent indicator. It has a big difference compared to the divisions system, since the technical understanding of the experts evaluates again the limitation caused by structural elements with higher importance.

Looking deeply into the individual evaluation of experts shows a common agreement about the values of different criteria. Whereas in two of them we notice a big difference in the importance evaluation, namely in the multifunctionality there was a significant difference in views assessing the sub criteria.



Figure 6. Comparison of the “multifunctionality” sub criteria relating different experts to the total evaluation

This situation has also been experienced for the divisions, sub criteria of the structure, where some of the evaluations considered it totally unimportant; others gave a considerable importance of this indicator.

Structure and Construction Elements

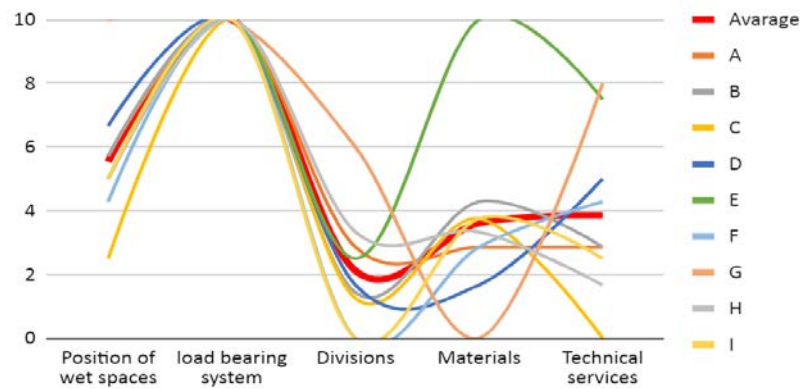


Figure 7. Comparison of the “structure and construction” sub criteria relating different experts to the total evaluation

Again, the authors can notice almost a consensus agreement about the model of circulation importance as a criterion of variability, while coming to the versatility or modification possibility, it seems that the experts gave more ambiguous and diverse ranking.

VARIABILITY

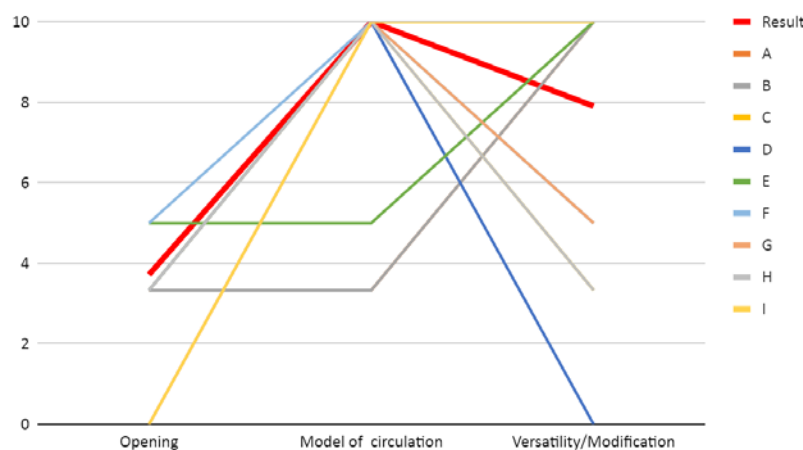


Figure 8. Comparison of the “variability” sub criteria relating different experts to the total evaluation

These differences can be related to the perceptive importance of flexibility in Turkish culture, but with lack of designers’ sensitivity to tackle this issue. Particularly, due to the different definitions and the vague or absence of unified concept definition of flexibility. This is very clear when reviewing the diagram of adaptability assessment, where it looks stochastic and mixing the meaning of different criteria. Therefore, this research is trying to find a common unified definition of flexibility and its evaluation criteria and indicators.

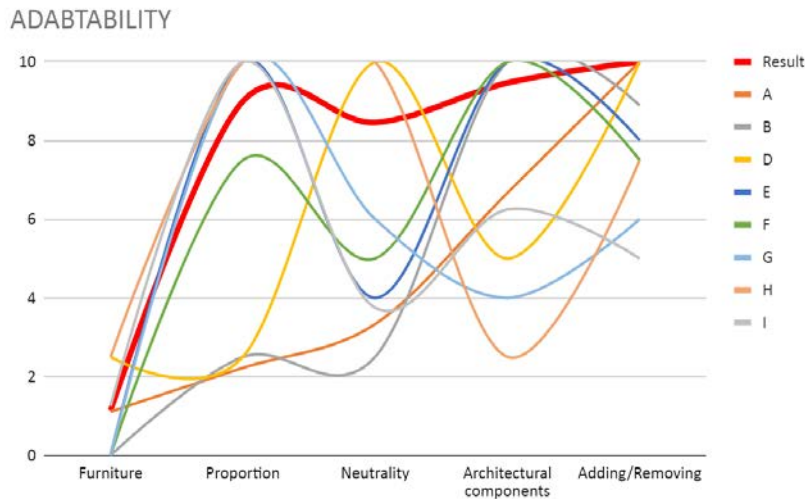


Figure 9. Comparison of the “adaptability” sub criteria relating different experts to the total evaluation

These results shed light onto the importance of understanding flexibility and the hierarchy between its principles from the Turkish designers’ view; which have not been a real consideration in previous flexibility assessment systems. These systems have been directed according to the assumptions of the authors. The needed explanations between the indicators of flexibility to the experts have shown that an awareness has been provided regarding the need of flexibility. On the other hand, to ensure that this designers’ vision responds to the users’ expectation, the authors to are conducting a comparison study to define users’ view first, and compatibility between both views second.

CONCLUSION

Flexibility creates an opportunity for an efficient and sustainable way of living for the inhabitants. Based on the presented evaluation system, which is established to define factors as a guidance for a flexible housing design. In order to adapt to the changing requirements of the users living in it, it is essential that the designers agree on a unified definition.

According to the aforementioned results of the designers meeting anonymously, it has been noticed that most of the experts have a different understanding of flexibility, but also have concurred on some indicators of it. All of the designers agree that structure and construction is the most important aspect of flexibility while divisions, which is a sub criterion of the structure and construction, have not played a crucial role. Even the experts were familiar with the terms of flexibility; sub criteria and assessment system were not an argument neither in norms nor in the practice as a real consideration when planning. Although they evaluated the main criteria differently giving a low ranking for some of them considered as an unimportant criterion, when evaluating the sub criteria of those low-ranked ones, they were evaluated with high rankings. After the explanation of the content, all the designers indicated that such a study would be very useful for the sustainability and efficiency of the housing design in Turkey.

In order to compromise the real needs, since there is no real agreement with the interviewed designers, the future studies of the researchers focus on the opinion of the users which can reveal their requirements by applying the same methodology. Comparing the user's requirements with experts' understanding will enable us to establish a clear evaluation system of housing flexibility. This is when the final system can be formed and published, and it might help to create an awareness for a clear understanding of the terminology of flexibility, and provides guidelines, which contribute to the implementation of flexible housing design from the point of view of Turkish society. The awareness provided with the study, has the potential to change the understanding of nowadays stability of the Turkish housing design. Especially after revealing the user needs of flexibility, inhabitants will be able to realise a shift to a more flexible housing design, which is necessary and possible. This study points out the "structure and construction" as the most important indicator of the flexibility which can stimulate a reviewing and rethinking process about the structure and materials of new housing in close future.

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CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants during the survey and in-depth interviews.

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The Evaluation of Interiority in the Identity of Public Spaces

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Abstract

Purpose

Public spaces in the context of everyday life in an urban environment include all places with public access and public use. Places for public interaction provide the greatest amount of human contact. In every city, many interiors are considered public because they are of or pertain to the people in everyday life. As part of public spaces, public interiors have an important role in creating place identity.

In an urban environment, place identity is defined by meanings as well as the elements of setting, activities, and events taking place within that environment. This paper aims to reveal the interiority attributes and elements of public interiors to determine how they influence the identity of interior places. This understanding clarifies how this differs from the more general concept of place identity in public spaces.

Design/Methodology/Approach

To do this, a framework for identity was constructed with three components: physical setting, activity, and meaning, based on the main theoretical perspectives of Relph (1976) and Montgomery (1998). To determine the relationships between the interiority indicators of public interiors and identity, this case study focused on Kızlarağası Inn, a historic inn in İzmir, and its immediate surroundings. Data concerning the components of place identity were collected through archival research, observations, on-site documentation, questionnaires, interviews, behavior mapping, and tracking.

Findings

The analysis of the attributes and elements of place identity in this public interior indicated that the interiority of public spaces can play a positive role in increasing place identity. Moreover, the evaluations revealed the effect of internality in each component of place identity. Features like well-defined boundaries, closeness to human scale, volumetric properties, legibility, the potential of promoting a wide range of activities, and promoting a different sensory context stem from the internality of place.

Social/Practical Implications

This study emphasized the importance of public and urban interiors as significant places that facilitate public life. Moreover, it showed the extension of interior spaces outside the buildings, which emphasized a new perspective for interior architects and urban designers by bringing a new understanding of the interiority.

Keywords: Interiority, place identity, public interior, public space, Kızlarağası Inn

INTRODUCTION

In the everyday life of an urban neighborhood, the public realm to which public have physical and visual access as part of the urban framework is important for towns and cities since it is here where human contact and interaction are greatest (Tibbalds, 2012). The term “public space”, defined as all places with public access and public use, highlights the connection between people and space. “Public space is the common ground where people carry out the functional and ritual activities that bind a community” (Carr et al., 1992).

As part of this public space, public interiors also play a significant role in creating place identity. According to Hartevelde (2014), interior public spaces have always played significant roles in various social-spatial changes, making them crucial to cities and their culture. These spaces are parts of everyday urban life; places for socio-spatial transformation.

In every city, many interiors are referred to as public because they are of or pertain to people in everyday life in the sense that they belong to the people, regardless of government laws and regulations.

Public interiors acquire distinct cultural meanings in different cities or societies due to social adaptation and spatial transformation. Over time, each public space develops its cultural meaning and social value; its unique history and future. The public quality of an interior or any public space formed by public use depends on the specific culture of a city and its specific socio-spatial contexts, which influence each other (Hartevelde, 2014).

Defined more extensively, public interiors can be seen as both inside and outside buildings for public use and public interaction. The increasing intersection of the concepts of “public” and “interior” in the context of everyday life in an urban environment raises the important matter of the relationships and interactions of these urban spaces with their users.

According to McCarthy (2005, p. 112), “Interiority is that abstract quality that enables the recognition and definition of an interior”. The interior is made possible through a theoretical and immaterial set of coincidences and variables. As he notes, interiority means that interiors are controlled, which makes them potentially controlling environments that restrict possibilities within them. Consequently, they rely on sensual acoustic, haptic, olfactory, tactile, visual, climatic, physical, and social conditions to remain intimate and elastic (McCarthy, 2005).

In an urban environment, place identity is defined by meanings as well as the elements of setting, activities, and events taking place within that environment. This paper investigates the interiority attributes and elements of public interiors to determine how they influence the identity of interior places. This understanding clarifies how this differs from the more general concept of place identity in public spaces.

In this study, after reviewing the literature in place identity theories, a framework was constructed to understand identity in terms of the three components – physical setting, activity, and meaning – based on the theoretical perspective of Relph (1976) and Montgomery (1998). To

¹ In this study, the name “Kızlarağası Inn” includes all the selected areas including the inn itself and its immediate surroundings.

clarify how aspects of interiority establish identity, this study conducted a case study of Kızlarağası Inn and its close surroundings, defined as a “public interior”. Kızlarağası Inn¹, located in the Kemeraltı neighborhood of İzmir in western Turkey, is a historical center and bazaar district. The inn’s history shows how it is possible to grasp the elements that make it specific and valuable as a public interior. Until today, Kızlarağası Inn has been a place for social interaction, which indicates the social significance of this place.

A literature review of books, academic databases, reports, and articles was conducted to provide background information about interiority and place identity, besides the definitions and characteristics of public interiors and their components. To investigate the relationships between the indicators of public interiors and identity, data from Kızlarağası Inn concerning the three components of place identity were collected through archival research, field studies (observations, photoshoots, and behavioral maps), questionnaires, and interviews.

LITERATURE REVIEW

The notion of interiority is transformative, shaped by concepts of space and place through understanding the importance of social, cultural, physical, and technological developments within contemporary society. Taylor & Preston (2006) define interiority as: “The conscious and reflexive awareness of self, identity, community and others within a social environment. Situated among philosophy and psychology, this cluster of associated points in the interdisciplinary arena of ‘interiority’ examines the innerness of interior design as that which is felt and projected upon and within the interior environment via the body as a culturally lived organism” (Taylor & Preston, 2006, p. 11).

Interiority does not always define an indoor location. Similarly, the inside can also sustain exteriority. By breaking down this boundary, interior and exterior are not defined space but work simultaneously as one to provide everyday spatial experiences by creating opportunities for spatial engagement. McCarthy (2005) defines inside and outside as architectural prescriptions linked to the boundary of the building. However, interiority can be independent of the restriction of architectural buildings. Interiority and exteriority traverse the boundary of within and without. According to McCarthy (2005), for Wigley (1993), following Derrida (1988, 1991), interiority is built by identification and placement as mechanisms of domestication. For McCarthy, “enclosure is the encompassing aspect of closed space, implying the assertion of a boundary, and contributing with a deepness to the traditional notion of place in architecture” (McCarthy, 2005, p. 15).

By crossing their established spatial domain and facing the contemporary places of associated life, interior architecture and design have tried to expand and adapt their thematic horizon. The notion of interiority has overcome the boundary of the domestic environment to expand to public spaces of urban mobility, communication, and mass consumption

(Peressut, 2010, as cited in Leveratto, 2019). In his book, *The Architecture of the Well-Tempered Environment*, Banham (1969) shifted the notion of interiority from the concept of bourgeois domestic solitude to that of a built environment characterized by its internal atmosphere, irrespective of any scalar or typological distinction (Banham, 1969, as cited in Leveratto, 2019).

According to this approach, urban spaces have interiority characteristics depending on their enclosure spread and consolidated throughout the decades. Within the context of everyday life in an urban neighborhood, inside and the outside can cross each other's boundaries, making it possible to be outside and experience interiority. Specifically, the boundaries of inside-outside are continually loosened because of everyday requirements. Various degrees of inside-ness and outside-ness appear in everyday urban spatial settings, with varying degrees of permeability of the boundaries between spatiality, and various forms of traversing the boundaries (Atmodiwirjo et al., 2015).

As contemporary public spaces, public interiors play a significant role in everyday twenty-first-century urban life (Poot et al., 2015). According to (Giunta, 2009), public interiors are places for studying the interaction between the human body and space, and the interaction between the community, objects, and space. (Harteveld, 2014) claims that in present-day Western society, many exemplary interiors are becoming part of urban life and urban structure. That is, interior public spaces cannot be avoided as a part of everyday life, and the increasing consideration of public space focuses on public interiors.

Interiority obtains its potency by reducing distance. It is a conception of closeness and the making of interactions. As McCarthy (2005, p. 117) puts it, "Interiority is a space (in time or place) of closeness and intimacy". In the ideological view, the strength of the border refers to the capability of the thin geometry of the boundary to convert interiority. Boundary conditions define the extent of interiority, as well as flexibility and mobility.

The formation of identity and typical place character is related to experiential processes. To make this understandable, people attach meaning to a place in trying to create a sense of place. A place entails different modes of spatial experiences, such as instinctive, bodily, and immediate, as well as more cerebral, ideal, and intangible ones (Seamon & Sowers, 2008).

From the literature review, a framework was constructed, which consists of the attributes and elements associated with interiority, to investigate place identity through them (Fig. 1).

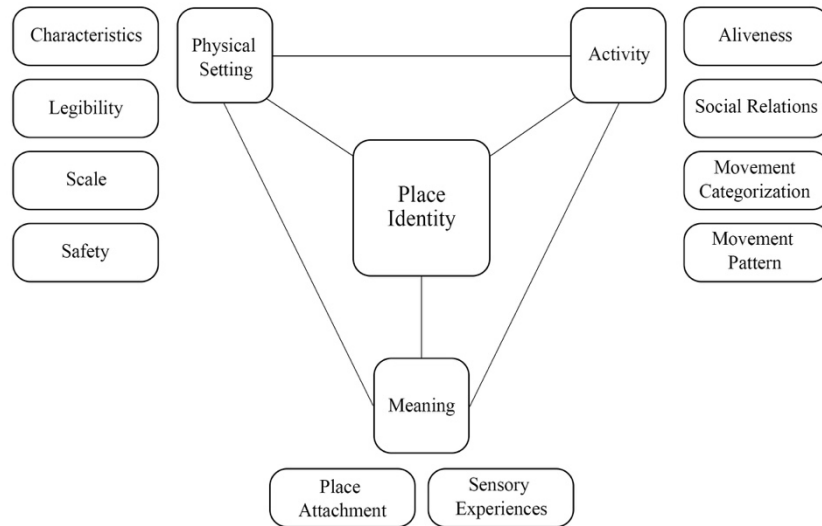


Figure 1. Attributes and elements of place identity associated with interiority. (Created by the authors, 2019)

There are various senses between people and their experiences in a place. The characteristics of physical setting is one of the features that influence the identity of place. Therefore, by creating meanings, conceptions, and safeguarding their functions, the physical structures of place contribute to the identity of a place (Najafi & Shariff, 2011).

The fundamental elements for studying the physical setting of a place in terms of interiority are legibility, scale, and safety. The legibility of a place and people’s satisfaction with its environmental characteristics are factors that influence how people read the environment. In other words, a place’s relationship with its surroundings determines its visibility, accessibility, and permeability, which in turn affect access and invitation (Whyte, 1980).

Interior space has many definitions. One aspect that defines the interior is the sensation of enclosure, based on the interior’s distinguishing borders (either tangible and/or intangible) from exterior space, such as the interiors of buildings. They are spaces that we can perceive directly with our bodies. Interior space can be defined by human scale, meaning that everything in an interior space can be perceived by direct exposure. While people occupy a space, it is defined according to their perceptions of the environment, thereby through the body (Shirazi, 2014). When the human body is taken as the starting point for experiencing and explaining the environment, then the scale and atmosphere of spaces become definitive.

Relph defines the concept of identity with place “through the concept of insiderness: the degree of attachment, involvement, and concern that a person or group has for a particular place” (Relph, 1976 as cited in Seamon & Sowers, 2008, p. 45). Accordingly, “if a person feels inside a place, he or she is here rather than there, safe rather than threatened, enclosed rather than exposed, at ease rather than stressed. Relph suggests that the more profoundly inside a place a person feels, the

stronger will be his or her identity with that place” (Seamon & Sowers, 2008, p. 45).

To understand the effect of interiority in public space activities, it is necessary to consider aliveness as the attribute associated with being both internal and related to social relations, movement categorization, and movement patterns.

According to White (1999, p. 35), “a space can sometimes manifest behaviors, bring them into being”. Activity is created by a place when human nature interacts with environmental opportunity. Places are associated with people’s work, behavior, actions, leisure activities, and social activities, which relate to the environmental interaction that depends on the presence of others in public spaces. That is, activities connect humans to places (Najafi & Shariff, 2011).

Aliveness is one of the attributes sensed about public space. It is supported by the intensity and diversity of activities created by pedestrian movement. All these activities represent the liveliness, energy, and enthusiasm of a place (Montgomery, 1998). Places that are densely populated with high energy and activity create more aliveness (White, 1999).

As two different categories of activity in public places, stationary behavior and movement refer to the level of pedestrian activity, primarily movement or staying and doing things. Movement means circulation, flow, origins, and destinations with the flowing people walking around and through the place and continuously creating motion. Foot traffic can be speedy and purposeful, as when people are on their way to work, or it may be slow and leisurely, as in a Sunday stroll for the joy of it. On the other hand, the place can be mainly activated by people involved in a wide range of stationary pursuits, such as sitting, watching, reading, eating, standing and talking, or taking photos (White, 1999).

The main approaches that specify meaning in relation to place identity are based on perceptions of place attachment and sensory experiences. Memories, expectations, alertness, culture, background, emotional state, life experience, values, and preferences can all influence the feeling of a location. Thus, (White, 1999) argues that the most immediate and tangible manifestation of the environment is the emotional content of a space. Public spaces are often bustling, busy places, full of energy and motion. This atmosphere is read with all our senses: sights, sounds, smells, tastes, and touch all melt within us to create the sense of the place. The form and degree of attachment are influenced by many factors including the socio-demographic characteristics and patterns of use. Collected experiences like ‘fulfilling, terrifying, secure, or socially and culturally shared activities’ are important factors in forming place attachments. Moreover, the geography of the place – its location, original features, and characteristics like landmarks, community structure, or unique public buildings – influence place attachment (Gieryn, 2000, as cited in Ujang & Zakariya, 2015).

The familiarity factor in place attachment can be understood by the degree of the place attachment of individuals. Places that are frequently used or visited have the highest levels of experience and are the most familiar. We should also bear in mind a strong relevance to local and historical contexts (Gustafson, 2001).

Generally, a place is comprehended in the way people experience it both physically and psychologically. People's memories, familiarization, the sense of place, and the meanings of spaces create place identity (Lai et al., 2013, as cited in Ujang & Zakariya, 2015). The varied associations between people and places, which are influenced by personal and socio-cultural contexts, create the place meaning (Ujang & Zakariya, 2015).

As this review suggests, place identity can be studied through the attributes and elements outlined above. This study therefore provides just such a case study of a public interior, with its place identity analysis based on the above theoretical framework.

CASE STUDY: KIZLARAĞASI INN

Historical Context

Kızlarağası Inn, constructed during the 17th century, is located in Kemeraltı district, for many centuries the historical center and bazaar district of İzmir² in western Turkey (Fig. 2). Since early times, İzmir has been a commercial port city, mainly because of ancient trade routes leading to its harbor. Since Kemeraltı remains one of the liveliest parts of İzmir, Kızlarağası Inn was lively as well as it was close to the harbor. The inn is a valuable example of Ottoman architecture in İzmir. By looking at the inn's history, it is possible to reveal the elements that make it unique and valuable as a public interior. Throughout its history, Kızlarağası Inn has been one of İzmir's meeting points and a place for social interaction, which indicates the social significance of this place.

² İzmir is Turkey's third largest city.

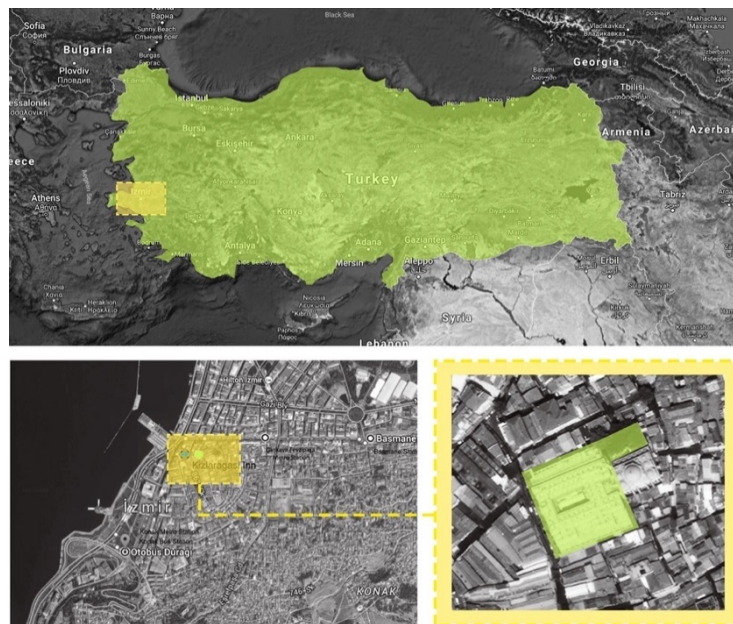


Figure 2. Location of Kızlarağası Inn. Adapted from Google maps, 2015.

Methodology

This study has been conducted from a qualitative perspective. An informative background of place identity and its components, besides the definitions and characteristics of public interiors and interiority, were constructed through the literature research. The next stage determined the relationships between interiority attributes and the elements of public interiors and identity. To test this relationship, data about Kızlarağası Inn were obtained from archival research, field studies (observations, photoshoots, behavior mapping, and tracking), questionnaires, and interviews.

Observations were used to understand users' behavior in the place and their interaction with the physical surroundings. Asking basic questions such as what, where, why, and how activities play out there helped to systematize the observation.

Photography was used to document the visual character of the study site, activities, and situations. Photographs and video can elucidate the interaction between the chosen public and urban interiors and their users. Moreover, this method is a tool for fast freezing situations, revealing more detail by analyzing the documentation (photographs and video). In this study, the emphasis was thus not just on the physical setting but also on situations and interactions between place (public/urban interiors) and people (public users).

The sample population for the questionnaire and interviews included two groups with contrasting perspectives: tradesmen/women working in Kızlarağası Inn and academics living in Izmir with backgrounds in architecture and design. The first group provided information from the standpoint of frequent users who experience this place as part of their daily life while the second group provided the opinions of professionals who are occasional users of Kızlarağası Inn.

Specific questionnaires were designed for each group based on the kind of engagement they have with the inn. Participants were asked to indicate their agreement with various statements using Likert scales and multiple-choice grid questions.³

For the first group, responses were collected using printed questionnaires distributed by the authors. From a total of 60 printed questionnaires, a final sample of 44 questionnaires was gained, representing 22% of the inn's shop owners. The response rate was 95% in this group. For the second group, responses were collected online by sending the questionnaire as an email link. Of 220 academicians invited to participate, 118 responded, giving a response rate of 99%.

Semi-structured, face-to-face interviews with seven questions were conducted with both groups.⁴ To get full and meaningful answers using the participants' knowledge and feelings, open-ended questions were asked. A total of six interviews were conducted with three participants from each sample group. The results are presented below, based on the relationship between the intended indicators of place identity and the users of the inn.

³ A five-point scale was used with five pre-coded responses.

⁴ The original language of the interview questions was Turkish.

Analysis and Results

This public interior’s legibility makes it comprehensible for users. Having an accurate image of Kızlarağası Inn, they are able to orientate themselves and easily access its different parts (Fig. 3a, 3b.).

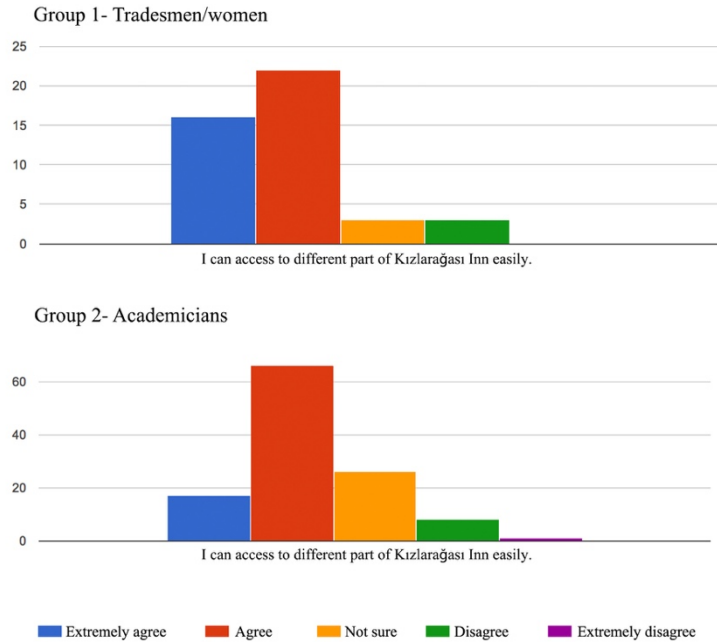


Figure 3a. Legibility of Kızlarağası Inn (Access)

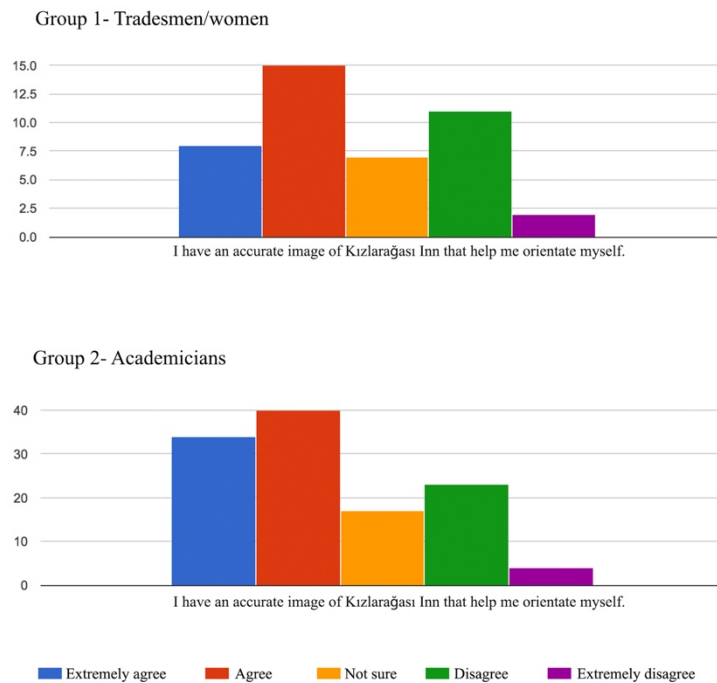


Figure 3b. Legibility of Kızlarağası Inn (Orientation)

The scale of the inn, which influences the understanding of inside as well as perceptions of the public interior was appropriate for its users (Fig. 4). By increasing perceptions of insiderness, this feature enhances the legibility of Kızlarağası Inn.

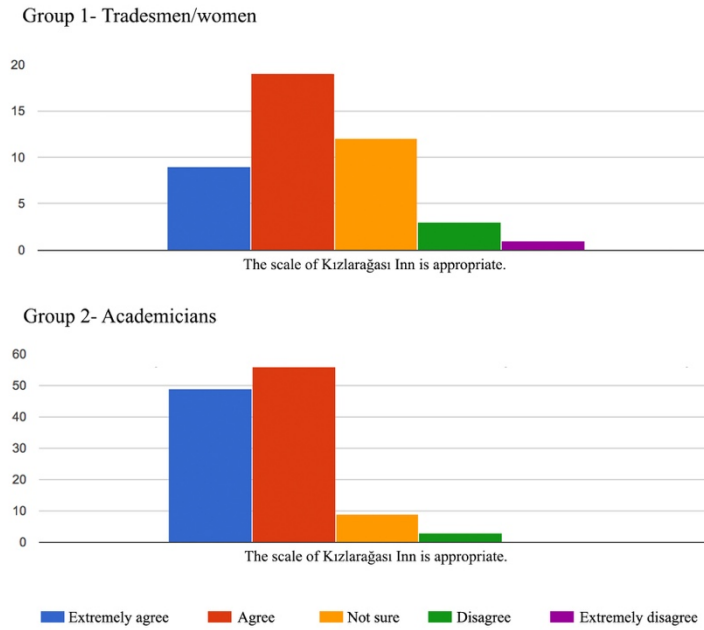


Figure 4. Scale in Kızlarağası Inn

Most users (80% of tradesmen/women and 6% of academics) feel safe in Kızlarağası Inn, which can be explained by the above-mentioned interiority features of this place. The higher perceived safety of tradesmen/women than visitors can also be explained by their greater familiarity (Fig. 5).

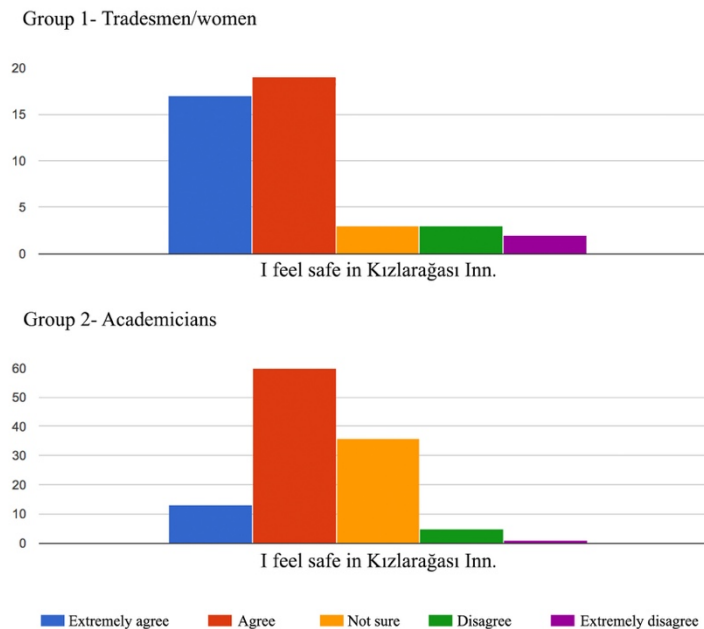


Figure 5. Safety in Kızlarağası Inn

Participants also sorted highlighted visual characteristics of Kızlarağası Inn. The findings suggest that the important attributes of the physical setting include volumetric properties, color and texture, plan layout, facade quality, and scale. These are the attributes that are most

recognized by users, that influence their relationships with the place, and contribute to the sense of place. In short, as an interior, Kızlarağası Inn promotes several characteristics, particularly volumetric properties and scale (Fig. 6).

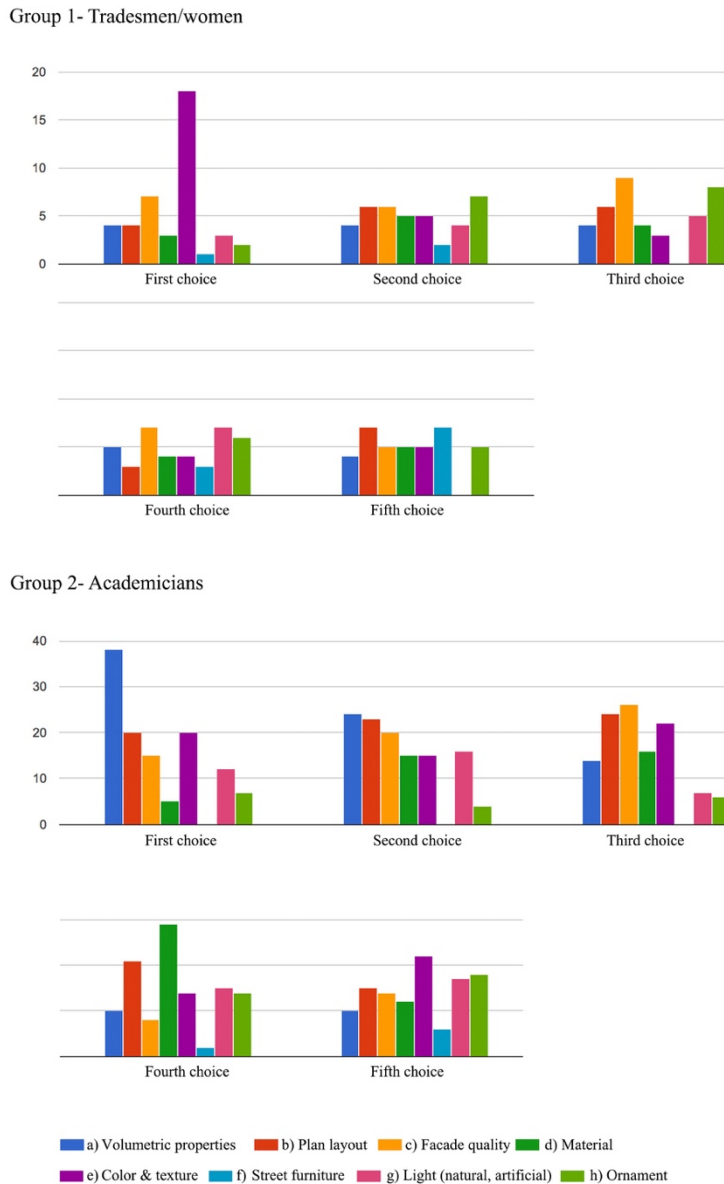


Figure 6. Selected visual characteristics of Kızlarağası Inn

The inn attracts a large proportion of İzmir residents by its varied activities, commercial options, and vibrant environment (Fig. 7a, 7b). As one of the interviewees noted, Kızlarağası Inn is functioning well, it is creating a dynamic atmosphere which promotes activity and aliveness for its users. Nowadays, Kızlarağası Inn functions as a commercial center in line with its original purpose and the building’s primary layout. In this regard, it is coherent, meaningful, and well-maintained. Current activities are relevant to real or factual life and current commercial conditions. Everything here is connected to daily life. This place provides a suitable environment where tradesmen/women can work happily and visitors

are satisfied with the service they receive (Ş.E. Merter, interview, July 18, 2017).

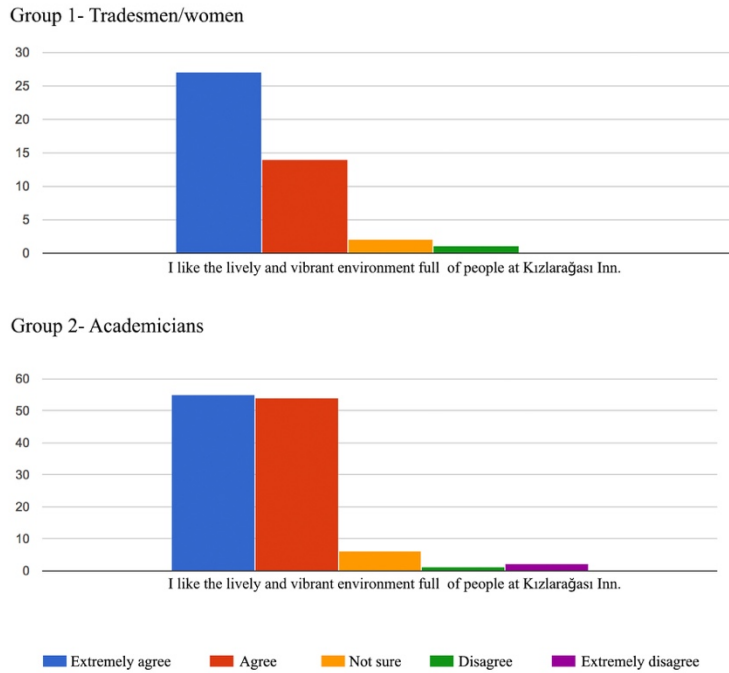


Figure 7a. Diversity of activities at Kızlarağası Inn (Internal atmosphere)

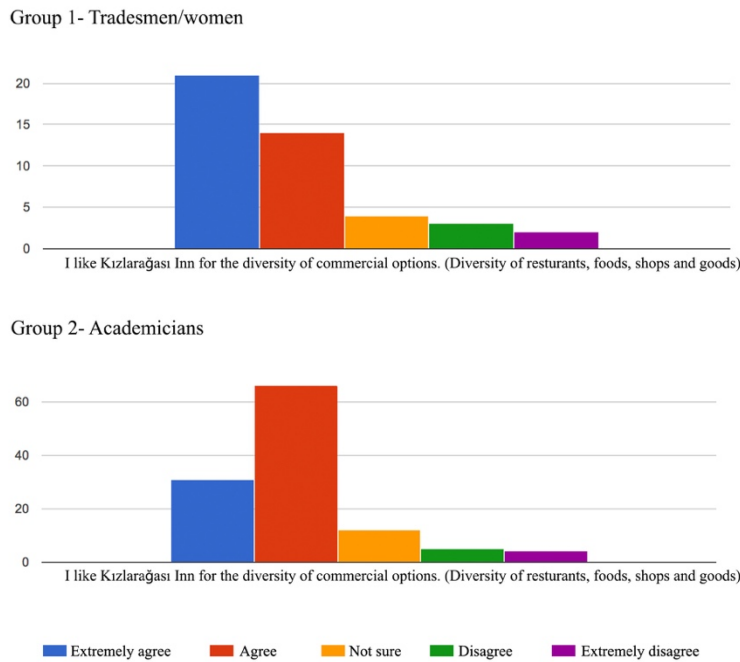


Figure 7b. Diversity of activities at Kızlarağası Inn (Commercial options)

According to the participants, the activities inside Kızlarağası Inn both attract visitors and help develop social relations (Fig. 8). Besides the general potential of a public space to maximize people-people interaction, Kızlarağası Inn promotes a wide range of social activities. The socially shared activities increase social interaction, thereby developing social relations. In turn, they help create place attachment (Fig. 9).

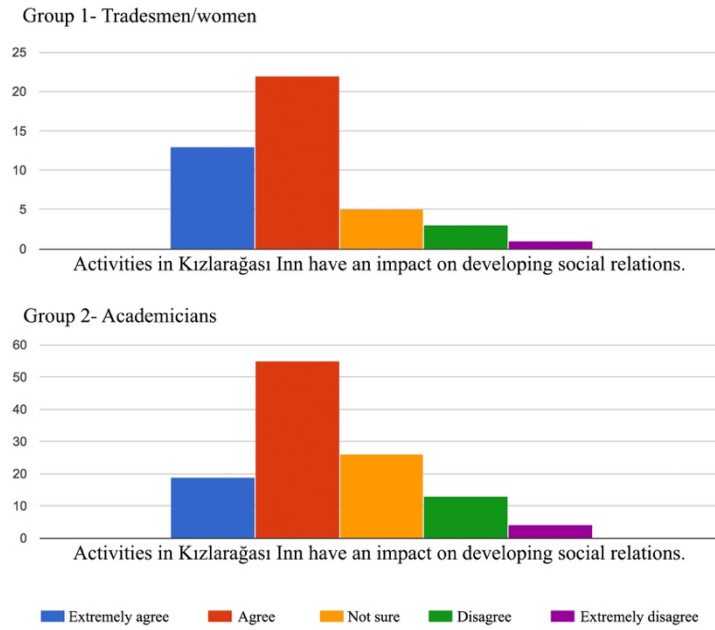


Figure 8. Activities developing social relations



Figure 9. Street music outside the main entrance of Kızlarağası Inn (Author's Archive, 2017)

The academic participants were also asked why they visit Kızlarağası Inn. The most common purposes were strolling, drinking tea or coffee, or having a meal, followed by shopping, and meeting a friends or acquaintances (Fig. 10).

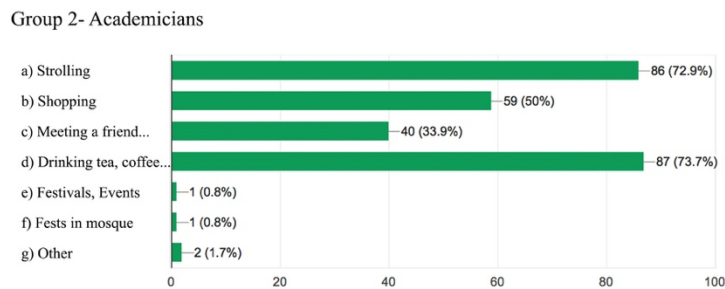


Figure 10. Reasons to visit Kızlarağası Inn

As one interviewee, İ. Alpaslan (head of Chamber of Architects in İzmir and Assistant Professor of History of Architecture at Dokuz Eylül University, Faculty of Architecture, interview, July 18, 2017) put it, having a drink and taking a rest at the yard of Kızlarağası Inn is a good escape from the din and the hot weather of Kemeraltı (Fig. 11). Merter (interview, July 18, 2017) noted how shopping has a historical background: Kızlarağası Inn had an important role in the history of Kemeraltı. This inn had a significant function in terms of commerce. That is to say, it was an important center from past to present.⁵

⁵ The original language of the interviews was Turkish, so all the quotations are translated into English for this paper.



Figure 11. Kızlarağası Inn, view of front yard (Hisarönü) (Author's Archive, 2017)

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It should also be noted that almost half of the participants suggested more than one reason to visit the Inn (Fig. 12a) while over 70% drop by whenever they are in Kemeraltı Bazaar (Fig. 12b), as A. Yentürk (writer, researcher, and collector at Kızlarağası Inn, interview, 24 July, 2017), another interviewee, explained: "Well, here is a place where people cannot pass without stopping by if they are close." Moreover, Kızlarağası Inn also functions as a passage to Kemeraltı Bazaar (Fig. 12c) as its well-defined boundary, human scale, and feeling of safety invite people to pass through. V. Yıldız (musician at Kızlarağası Inn, interview, July 31, 2017) considered this in the interview by stating that anyone passing through the inn cannot ignore it; even people who try to shorten their way get involved because it is eye-catching. He adds that this place provides value for İzmir, which should be appreciated. This is why some visitors come from other neighborhoods to spend some time here and relax.

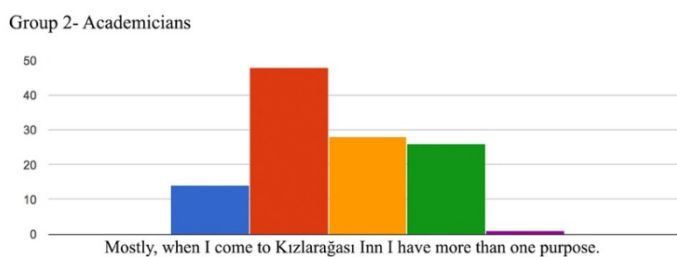


Figure 12a. Activity distribution in Kızlarağası Inn (Purpose of visit)

Figure 12b. Activity distribution in Kızlarağası Inn (Routine)

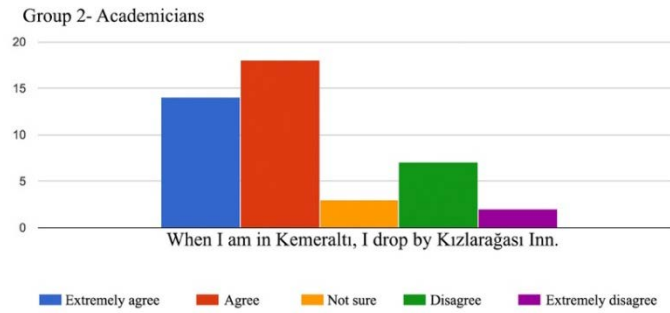
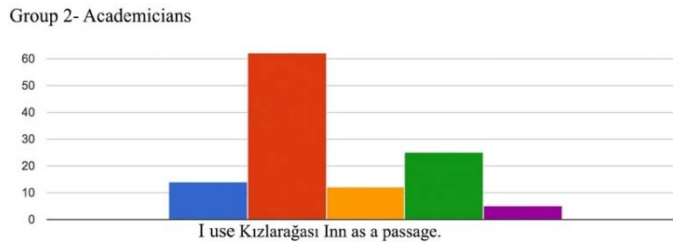


Figure 12c. Activity distribution in Kızlarağası Inn (Passage)



Behavior mapping of activities was conducted by plotting the positions of all people in Kızlarağası Inn involved in any sort of stationary or moving activities like walking, standing, and sitting. This determined where people and activities are concentrated, and where people position themselves relative to other people, buildings, and open spaces. People were recorded at Kızlarağası Inn over two days (weekend/weekday) for three different time periods (Table 1).

Table 1. Results of behavior mapping

Place	Time periods		Standing	Sitting	Walking	Total
Courtyard	Weekday	Morning	11	45	9	65
		Noon	11	84	17	112
		Afternoon	14	77	19	110
	Weekend	Morning	6	51	1	58
		Noon	1	80	9	90
		Afternoon	41	165	35	241
Ground Floor Passages	Weekday	Morning	10	4	3	17
		Noon	53	5	64	122
		Afternoon	75	12	84	171
	Weekend	Morning	21	2	14	37
		Noon	62	6	82	150
		Afternoon	67	12	81	160
First Floor Passages	Weekday	Morning	9	5	11	25
		Noon	7	18	16	41
		Afternoon	8	25	4	37
	Weekend	Morning	7	2	8	17
		Noon	4	26	8	38
		Afternoon	8	56	31	95

The findings show that the inner courtyard promotes stationary activities, with sitting to drink tea or coffee being the most common behavior. In contrast, the passages accommodated circulation as moving activities were most common there, as expected based on their function and users. In short, as a public interior, Kızlarağası Inn promotes a wide range of both stationary and moving activities that invite more people to participate.

The behavior mapping also showed that the inner courtyard is the most crowded area. Its semi-open areas are preferred over closed areas. In his interview, İ. Alpaslan (interview, July 18, 2017) pointed out how both weather and lifestyle influence this by stating that in Mediterranean cities, outdoor spaces are mostly preferred for living daily life. The local climate is the main reason for the popularity of inhabiting outdoor spaces. These semi-open areas are well-defined by a clear boundary, which increases the pleasure of being in an interior space.

Tracking was used to observe users' movement patterns in the inn, specifically by following a random selection of visitors over two days (weekend/weekday). The results indicated that visitors walk considerably faster on weekdays than weekends, presumably because the former tend to be more goal-oriented than the latter since people visit for pleasure at the weekends. The same conclusion applied to first-floor visitors since they tended to be goal-oriented with a specific destination in mind that affected their walking speed and time spent there. Finally, the observations showed that weekend visitors come in larger groups, of which a significant proportion are families, so most wander around before engaging in any stationary activities.

To sum up, the data provided a clear image of the activities promoted by Kızlarağası Inn and how people interact with this place. This information revealed the diversity of activities, the areas where they take place within this public interior, and the impact of its interiority on the diversity of users and their preferences.

Regarding preferences about Kızlarağası Inn, 60% of participants selected its historical character as the most important feature, followed by its spatial quality and variety of activities (Fig. 13). Thus, the historical character and spatial quality of Kızlarağası Inn are two significant features. As a specialist in the history of architecture, İ. Alpaslan (interview, July 18, 2017) explained this factor in detail by stating that Kızlarağası Inn is one of the important remaining historical buildings from Izmir's commercial history. Apart from its historical significance and characteristics, Kızlarağası Inn is one of the most attractive places in Kemeraltı. He added that it is a building that improves the culture and life of the city because it is easily articulated with daily life.

He also noted that "its spatial quality is very high" (İ. Alpaslan, interview, July 18, 2017). D. Güner (professor at Dokuz Eylül University, Faculty of Architecture, interview, July 24, 2017), another interviewee (2017), agreed: "The inns in Kemeraltı are inherited from the Great Fire of İzmir. Kızlarağası Inn is also important in that it is the first inn to have been

opened for tourism in the historical area after having been restored. It is one of the basic reference points in Kemeraltı, and people from İzmir often visit there.”

Because of these historical characteristics and its background, more people know about the inn, which increases its publicity. In addition, its wide range of activities and spatial quality make it both a landmark and a public place that people use.

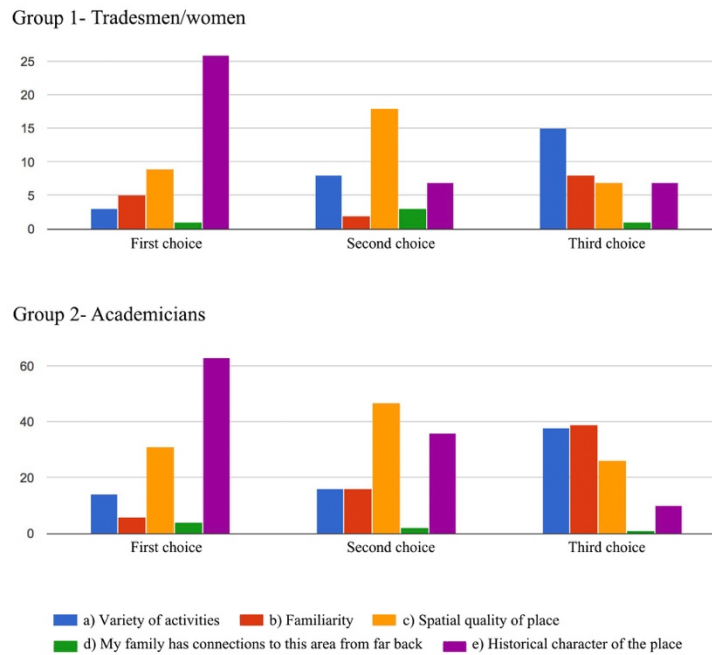


Figure 13. Participants' preferences about Kızlarağası Inn)

The importance of the atmosphere of a public interior as a significant factor in its identity was true of Kızlarağası Inn for more than 90% of participants. As previously stated, atmosphere is read through all our senses that combine within us to provide a sense of the place. There are several findings regarding these sensory experience indicators. First, Kızlarağası Inn engages all senses: visual, auditory, olfactory, tactile, and gustatory (Fig. 14), although visual and olfactory sensations were most important (Fig. 15). As İ. Alpaslan (interview, July 18, 2017) noted, “Kızlarağası Inn appeals to all five senses. However, as an auditory experience, it is a different part of Kemeraltı. That is to say, when you come inside the inn, the acoustic structure changes. It smells different, too. In this regard, the lack of vehicles can be mentioned as a reason”. This statement confirms that the interiority of Kızlarağası Inn is a significant factor in the sensory experiences of users. That is, this place, as an interior, promotes a different sensory context to the outside environment.

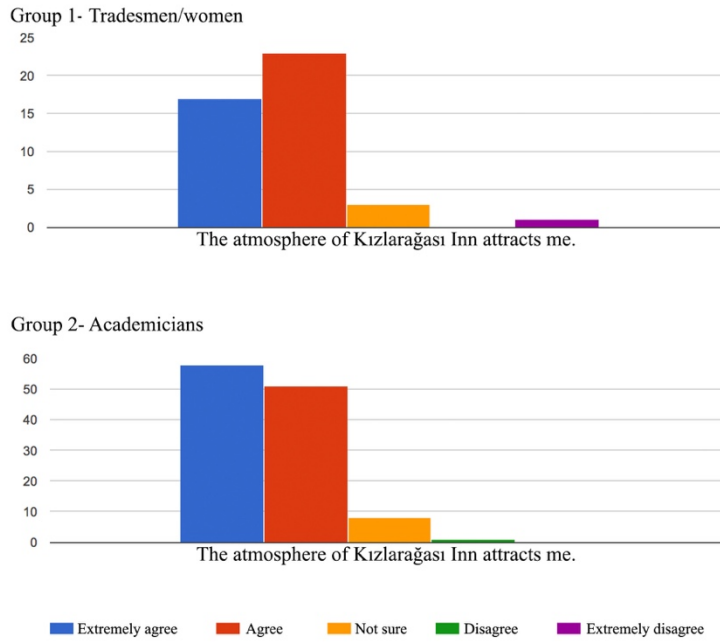


Figure 14. Sensory experiences of Kızlarağası Inn's users

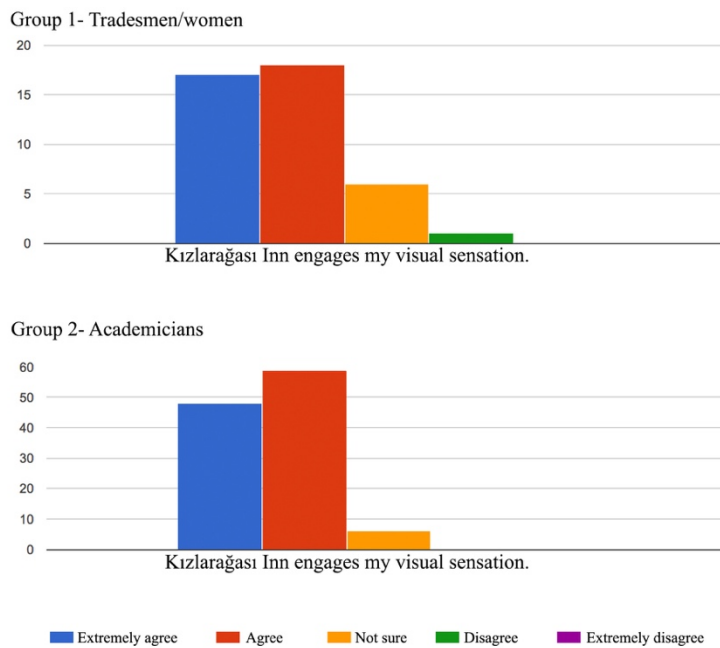


Figure 15. Visual sensory experiences of Kızlarağası Inn's users

The inn's interior creates a specific auditory environment that creates the atmosphere of the place and the sensory experiences of the inn's users. For example, users reported that it is pleasant to escape the traffic noise in this interior (Fig. 16). Another influential feature is music, which was mentioned by several interviewees: "The existence of the flute course here has a great influence on us" (G. Güler, antiquarian at Kızlarağası Inn, interview, July 21, 2017). V. Yıldız (interview, July 31, 2017), who is specialized in this music (Turkish flute, *ney*), noted how the flute performance in the historical atmosphere involves people emotionally. Another interviewee stated that every item in Kızlarağası Inn was attractive, but from his perspective the most important thing was feeling

peaceful and delighted there, and clarified this as his reason for being there at every opportunity (Ş.E. Merter, interview, July 18, 2017). While V. Yıldız (interview, July 31, 2017) noted that the inn attracts visitors with its historical character and its old texture and makes them physically and emotionally involved.

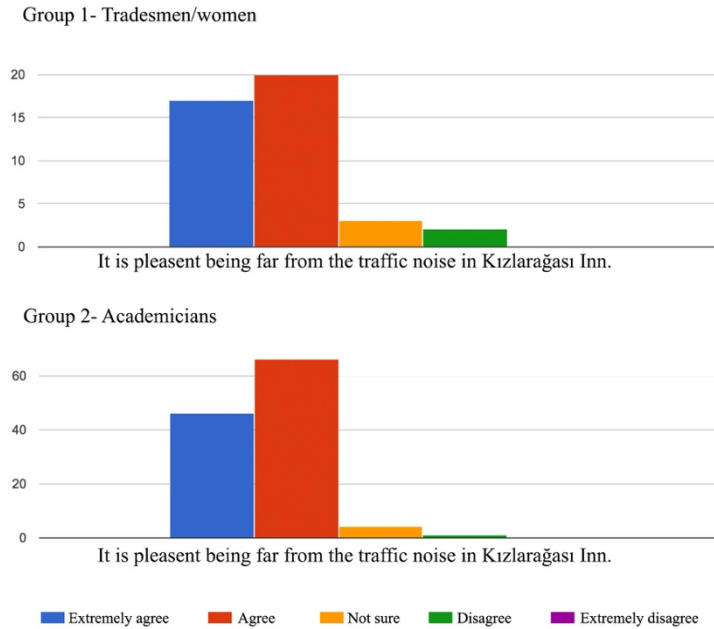


Figure 16. Auditory sensory experiences of Kızlarağası Inn's users

The responses to the attachment-based statements indicated that participants are attached to the inn. The highest agreement scores were for the following two statements: "If Kızlarağası Inn is under threat (of being demolished), I will defend it" (Fig. 17a) and "When I have guests from other cities or countries, I take them to Kızlarağası Inn" (Fig. 17b). T. Taner (professor of Urban Design at Yasar University, Faculty of Architecture, interview, July 17, 2017) recalled that he took foreign guests there several times and all of them liked the place. He believes that foreigners like it because it is the most characteristic place in Kemeralti. This sense of attachment toward Kızlarağası Inn was further confirmed by the interviewees through their feelings, emotions, and behavior, as in the following statements. For D. Güner (interview, July 24, 2017), Kızlarağası Inn is a place where public have in mind and associate it with memories, while İ. Alparslan (interview, July 18, 2017) explained that, as a historian with an interest in the history of the city, he feels bonded with this place. Moreover, he saw Kızlarağası Inn as an important historical structure of İzmir that has brought many characteristics of İzmir's history to the present. T. Taner (interview, July 17, 2017) declared that he admires the inn and enjoys going there. He considers this place as a successful public space, where is pleasant to rest and drink coffee. He also confirmed that there is no other lively place working as well as Kızlarağası Inn for tourism (T. Taner, interview, July 17, 2017).

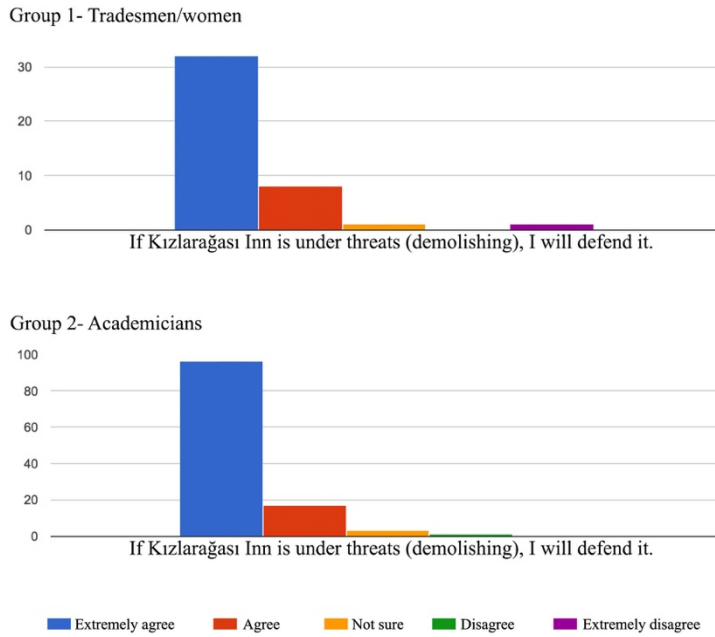


Figure 17a. Attachment of users to Kızlarağası Inn (Endurance)

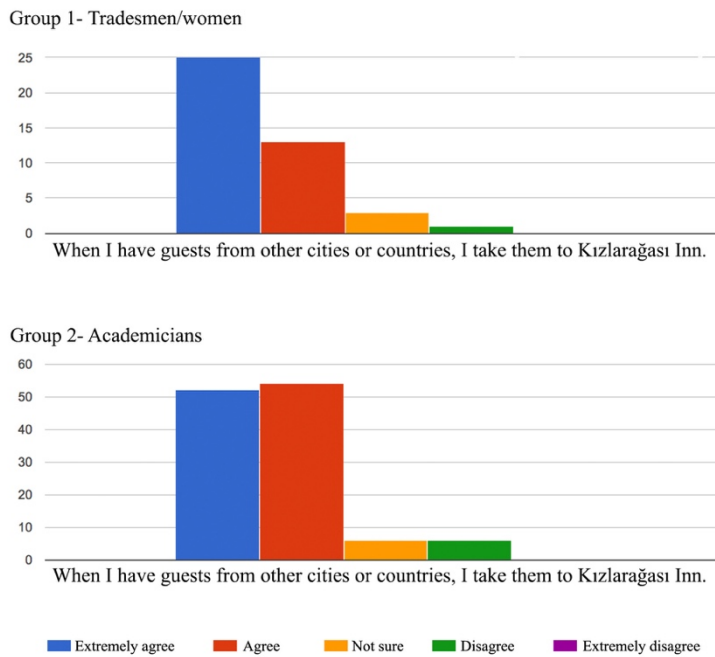


Figure 17b. Attachment of users to Kızlarağası Inn (Historical Heritage)

The study shows that a large percentage of visitors have many fond memories of Kızlarağası Inn, which could explain their sense of attachment to this place and make the existence of this interior valuable. Thus, place identity is developed through people's memories (Fig. 18). Several experiences were narrated by interviewees regarding their memorable moments in Kızlarağası Inn:

What I remember as the most delightful memories from my internship in Kemeraltı during the hot days is our routine of meeting in Kızlarağası Inn and drinking coffee there. Both physically and mentally, it was an unforgettable experience for me to go into the cool interior of the inn. I

remember that I used to like going through the inn although it made my way longer (İ. Alpaslan, interview, July 18, 2017).

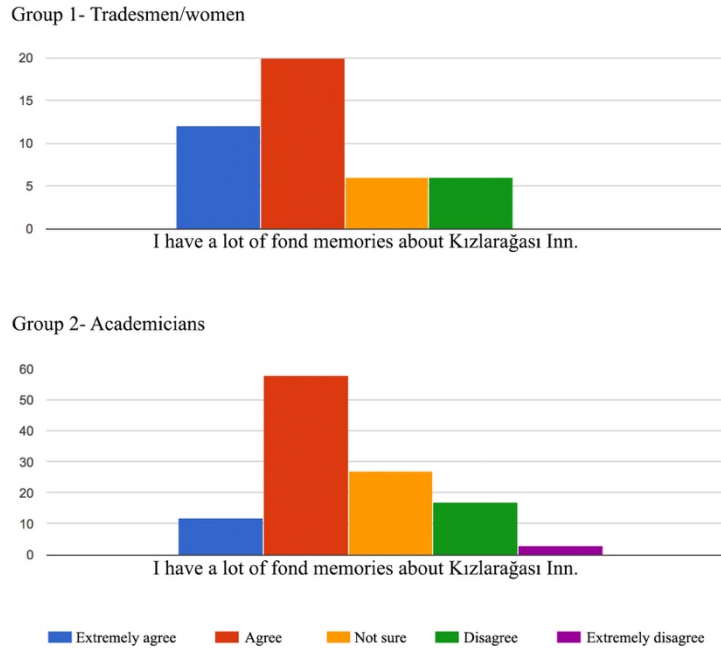


Figure 18. Place memory of Kızlarağası Inn's users

As İ. Alpaslan (interview, July 18, 2017) noted, as an interior, Kızlarağası Inn promotes the pleasure of being in it, which invites its users to participate in activities or just pass through its passages. B. Üzmez (photographer, interview, 13 July, 2017) explained his photographic memories in Kızlarağası Inn:

As a photographer, I should admit that taking photographs there has always been interesting to me. Not only the inn itself, which can be captured from outside and inside, but also people and activities can be photography subjects. When I was at IFOD (İzmir Photography Art Association), around four years ago, we carried out a documentary photography project about Kemeraltı with nine friends. During that period, we visited the inn often to take photographs. We took photographs of record sellers, antique shops, gramophones, and flute players and their workshops. It was an interesting memory for me.

E.Ş. Merter (interview, July 18, 2017) also emphasized that every moment while taking photographs there provided outstanding memories.

Besides the previously discussed interiority features of the inn, like its physical and historical characteristics, and its specific sensory context, these memories demonstrate that Kızlarağası Inn has great potential to address various groups of users and offer opportunities for each group to experience this place in their own way. Thus, all the participants reported fond memories related to this place and their experiences of its atmosphere. These are then transformed into strong emotional links stimulating their attachment that determine its social value.

CONCLUSIONS

Based on the analysis in this study, the most important interiority aspects in the place identity framework of Kızlarağası Inn can be summarized as follows.

Previous studies have shown that legibility, volumetric properties, well-defined boundaries, and nearness to human scale are key attributes and elements of the physical setting that influence how users relate to a place and contribute to its place identity. In the case of Kızlarağası Inn, the interiority of the public space is a significant factor for developing this relationship.

In addition, the data reveal that the inn's positive effects on users stem from its appropriateness for Izmir's climatic conditions, culture, and lifestyle in terms of the available areas and functions of this interior.

While any public space should promote the greatest amount of people-people and people-place interaction, public interiors specifically promote a wide range of activities addressing different groups of users. In the case of Kızlarağası Inn, its historical character, spatial quality of place, variety of activities, and different sensory contexts increase its popularity; that is, people know it, like it, and use it. The ability to encourage a variety of activities and different sensory contexts stems from the interiority of place, which provides sensory experiences and fond memories for users. This study's findings thus demonstrate the positive role of interiority in place identity components. Regarding attributes and elements of meaning in Kızlarağası Inn, the effects of place identity in public interiors are related to both the physical and social environment. That is, a place's physical setting, activities, situations, and events, the individual and group meanings created through people's sensory experiences, attachments, involvement, memories, and intentions towards these places all play a role in creating place identity.

This study emphasized the importance of public and urban interiors in interior architecture. Moreover, it showed the extension of interior spaces outside the buildings, which reflect on interior designers by bringing a new understanding of the interior and its extension in terms of the design task with its contingencies to other design fields and disciplines.

Furthermore, this study emphasized a new perspective for urban designers who, when dealing with public space, traditionally focus on outdoor public spaces as a public domain or publicly owned spaces. This perspective notes the existence of public spaces inside buildings that include both publicly and privately owned spaces.

This study highlighted the importance of these public places as part of everyday life in an urban environment. Further studies could provide more insights by observing interiors like Kızlarağası Inn from different perspectives while considering the features that define them as interiors. For instance, longitudinal analyses of public interiors could provide insights into changes in contemporary cities and help us learn from the history of the design of public interiors for future urban environments.

Finally, it is important to acknowledge that public and urban interiors are significant places that facilitate public life, where people come together for social reasons, besides religious, civic, and marketing functions. In this respect, they can be considered as an influential part of the public realm that can significantly contribute to urban life to make cities more livable.

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CONFLICT OF INTEREST

There is no conflict of interest was declared by the authors.

FINANCIAL DISCLOSURE

The authors declared that this study has received no financial support.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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Resume

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Space Prospect in the Flexible Era of Late Capitalism

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Abstract

This study is mainly influenced by the idea of Manfredo Tafuri that architecture cannot fulfil its ideological task since it started serving capitalism and there are no more utopias. In his book *Architecture and Utopia: Design and Capitalist Development*, Tafuri discusses the socio-philosophical tangle in which architects have been struggling since the 18th century. According to Tafuri, the drama of today's architecture is the obligation to return to pure architecture, a matter of form without utopia, supreme uselessness.

Another influence on the study is Richard Sennett's book *The Corrosion of Character*. Sennett mentions the concept of *flexible capitalism* and explains that work life is not as rigid as it was before. According to Sennett, flexibility has an impact on personal character and asks questions about how to decide the lasting value of we in an impatient society, how to pursue a long-term goal in a short-term economy, how to sustain loyalties to the continually redesigning institutions.

Purpose

The thoughts of Tafuri and Sennett are discussed through Patrik Schumacher's Parametricism manifesto. In the manifesto, Schumacher reflects architecture's evolving patterns of communication in relation to its social task. The main objective of the study is to propose a future space based on the ideas of Tafuri, Sennett and Schumacher.

Design/Methodology/Approach

This paper discusses the reviews of books of Tafuri and Sennett and manifesto of Schumacher as a methodology.

Findings

After the reviews of *The Corrosion of Character* and *Architecture and Utopia*, there is a discussion of flexible space through parametric design approach. Finally, there is the prediction of future space based on the findings in the previous sections.

Research Limitations/Implications

There are no research limitations for this paper.

Social/Practical Implications

According to this paper, parametric design method can be used in practice to achieve the spaces that are needed by the complex society of global era.

Originality/Value

This paper synthesizes the ideas of two great thinkers, who have influential discourses on architecture and business world, and approaches them from the perspective of parametric design as one of today's design tools, to make predictions about the future space.

Keywords: Flexible labour, flexible space, workspace, parametric design

INTRODUCTION

New in, old out. The consumerism which was created by late Capitalism has been more than just purchasing. The consumption of the produced goods, the creation of new requirements through new goods has forced consumers for rapid adaptation to these new requirements. For example; we really did not feel the need for cell phones before they were produced, but now we cannot live without them. We consume everything quickly – relationships, places, etc. – as a result of this rapid adaptation. Even though it is worthwhile to protect the values we inherit, it is now more valuable to ensure the fastest adaptation to new changes. The communication era, which is created by late capitalism and globalization, has also affected business life. In this global era, work life is forced to be global and outsourced because of the production processes (raw materials, supplier industry, market, know-how, etc.). This leads white collars, who carry out bureaucratic works of the companies, to be global and mobile. As the servants of consumerism, the white-collars – the workers of the information era – should be flexible and have multiple abilities in order to keep up with the change of situations and to be successful in different business fields.

In today's world, there is a common opinion that immaterial (1) labour must be flexible. When the career paths of today's white-collar workers are examined in detail, the evidence of this flexibility could be found. Richard Sennett (1998) mentions in his book *The Corrosion of Character* that in forty years of labour, an educated worker should change his/her job at least eleven times and skills at least three times.

While capitalism is determinative in our lives, how has it affected architecture? Tafuri (1976) answers this question in his book *Architecture and Utopia* that architecture is not a directive tool anymore because it serves capitalism. Architects are not ideologues of society as they were in the past.

Nowadays, Sennett says that labour is changing, and it should be flexible. He speaks about the change in the labourer and how labour should be shaped. In addition, Tafuri speaks of the change in architecture along with capitalism and questions the ideological task of architecture. Schumacher states that societies are complex and diverse and the structures that will respond to the societies can be implemented with parametric design, which is one of the contemporary design approaches. In light of these important ideas, the task of the architect and the space of the future is questioned in this study.

The question raised by this diversification was; *should architecture maintain its rigidity in the global era while everything is flexible?* Parametric design, as one of the contemporary design approaches, may answer this question. Based on the concerns mentioned above, this study questions how architecture should respond to the needs of life in the flexible era of today by interpreting the task of architecture towards society, based on the perspective of Tafuri. In addition, this study proposes a future space based on scenarios of how future lifestyle is

going to be. Is this change going to be present in the future? Or is it going to stop?

1. FLEXIBLE LABOUR IN LATE CAPITALISM

Richard Sennett (1998) explores the effects of what he calls the new economy or new capitalism on the lives of workers in his studies. He reveals how the work undermines and degrades the identities of workers in the late capitalism's flexible production process and leads to *corrosion of character*. Sennett notifies that because of long-term attachments to large companies, the *corrosion of character* and ultimate breakdown of society is inevitable. In the global age, because the capital is more flexible than ever before, the flexibility of the production process and also the flexibility of labour have changed the nature of labour. According to Sennett, some negative effects on the personality of the individual and *corrosion of character* are caused by the flexible working conditions that affect not only the working life of employees but also daily life activities.

On the other hand, the state's position as the biggest employer in the new capitalism has come to an end. Today multinational companies are geographically and spatially flexible in the organisation of new capitalism, local companies organized around these companies and subcontractors offer employment opportunities. As Sennett mentions, the idea of being able to work for a lifetime in a single institution under new working conditions is now a dream.

Sennett stated that a new pyramid emerged, unlike traditional production and management. "Specifically, this new structure performs like an MP3 player. The MP3 machine can be programmed to play only a few bands from its repertoire; similarly, the flexible organization can select and perform only a few of its many possible functions at any given time" (Sennett, 2007, pp. 47-48)

In the book *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism*, Richard Sennett (1998) discusses the impact of the capitalist economy on the lives of labourers. "He views each life as an ongoing story, structured by the passage of time and highlighted by significant career-related events" (Magill, 2005). Sennett follows the current economy's development briefly and evaluates its effects on the lives of people, rather than criticizing the economy itself. He also asks some questions about how to create long-term purposes in a short-term society, how to sustain durable social relations, how to develop a story of character and life history in a society made out of episodes and fragments.

Sennett (1998) defines work, which provided workers identity and security before the mid-twentieth century, as a fixed scale used to measure success. He contrasts this experience with American workers' current situation and uses personal examples to illustrate his points. "One administrative assistant told me, 'Each time you start a new job, you need to fake it. The boss expects you know how things should be

done and what he wants. But of course, you don't. It's a challenge" (Sennett, 2007, p. 50). "The mental world here is operational, process divorced from content" (Sennett, 2007, p. 118). "... this purely operational thinking requires mental superficiality" (Sennett, 2007, p. 120).

"Work is not a pos-session, nor does it have fixed content, but becomes instead a position in a constantly changing network" (Sennett, 2007, p. 140). Sennett (1998) describes the modern economy as *flexible capitalism*, which is the goal of most modern businesses to make continuous changes in order to fit into the market. Sennett looks at working conditions in the new flexible economy and sees many problems. "There's no predictability, no long-term commitment, no long-term relations with co-workers and bosses, no loyalty, more confusion, etc. Most of all, the new work environment makes it more difficult to find and maintain a narrative of your work life" (Kjerulf, 2004). Sennett also tells the stories of other American middle-aged workers facing contradictions in the workplace and demonstrating how they cope with the risks they face. Through these personal stories, he illuminates the ethical disadvantages of the capitalist system that has brought the American economy to power.

According to Sennett (1998), the cornerstone of modern management is the belief that loose networks are more open to decisive reinvention than pyramid hierarchies like the Fordist era. The junction in the network between the nodes is more relaxed, a part can be removed without damaging other parts. Flexible specialization is the complete antithesis of the production system embodied in Fordism (Sennett, 1998). He also points out that work ethic of this era is different; it is more collaborative and more forgiving. Because of collaborative work life, there are groups in the workspaces that share superficiality. People in those groups stay together by avoiding personal and difficult questions, hence teamwork can be seen as the bonds of group conformity.

In reality, it is hard to achieve qualified white-collar jobs; it requires a good education that lasts for years. The education you receive is not unifying, it is discriminatory; your frequency of interaction with people who are not like you is reduced, on the other hand, you are directed to a specific place in terms of employment opportunities. In addition, you are forced into a very hard race with many people, including your friends to find the job of your life and thus begin the corrosion process of your character that will last throughout your working life (Özmen, 2017).

2. ROLE OF ARCHITECTURAL DESIGN

In his book *Architecture and Utopia: Design and Capitalist Development*, Tafuri (1976) mentions that architecture is in a downfall proportional to the development of capitalism. Although this conversion is very certain in architecture, architects are in uncertainty according to him. He states

that architecture is divested from its most important mission, ideology, by the capitalist development. *The shock* which is created by the large city experience rises from the contradictions of capitalism and it created alienation. According to Tafuri, bourgeoisie art and ideology struggled to close the distances between ethical morals and obligations in the world of capitalism. At the beginning of the capitalist development, the task of architect was to act as the ideologist of the society, to intervene individually with city planning, to be successful and to insist on the forms he/she produces for people. In addition, his/her forms had to contain the questions to criticise itself about social development and its own development (Tafuri, 1976).

Tafuri continues that city ideologies entered a new period at the end of the 19th century with the approach of Marxist criticism and directed towards a social problem. Its origin and incidence of realism revealed the delusion of utopianism. In the 20th century, social utopianism collapsed, and architecture became a form utopia. He states that eventually, the first industry that understood the effects of commodification was modern architecture, so architects tried to integrate the new capitalist city's order of production, consumption, and distribution.

According to Tafuri (1976, p. 50) *ideology* became both repellent and attractive by serving capitalism. It was expected to create global models without social purposes and to gain a social form of consumption. Therefore, *ideology* turned into the capitalist-industrial utopia. He claims that ideology existed between a specific place and class service so that creating a form no longer meant regulating society and the motto *form follows function* is a reflection of this reality. It is important to discourage people to look for heaven, "salvation lies no longer in 'revolt', but in surrender without discretion" (Tafuri, 1976, p. 74).

In the period – defined by Tafuri as the downfall of reason– industrial production was the cause of the annihilation of labour, which caused the shock. People were degraded to machine parts and alienation was growing. In the new urban ideology, everything was in commercialization and commodification. Because of this, consumption ideology (2) was shown as the best usage of the city. According to him, what is avant-garde now is industrial design.

Tafuri mentions that architecture ideology has no more a directive role in the capitalist development. In the last part of his book Tafuri tries to find an answer to the question; "What can be done?" The fact that building production continues to override the architectural ideology and economic social forces ignore the rationalization of the architectural ideology of urban order and points to renewal in planning. Therefore, the functional position and the ideology of the planner and planning must be redefined in accordance with this. He mentions that the urban and regional efforts in accordance with the benefits of employees are needed to be at a level that they consider the complex programs, criticize them and develop consistent alternatives to them. Now, what is

expected to be designed is a flexible social values system. In this sense planning turns into a tool of hegemony (Ertekin, 1981). Tafuri claims that the ideology of design is one of the most important requirements of modern capitalism; it is a consolidation tool as Corbusier determined. What is needed is to criticize and to add a political dimension to the architectural ideology. Only then the roles (designer, planner, etc.) in the field is going to be possible to handle in the capitalist development.

As can be seen, Tafuri situates some key points about the process of architecture after capitalism. "Architecture is for Tafuri supreme among the arts simply because its Other or exterior is coeval with History and society itself, and it is susceptible therefore to the most fundamental materialist or dialectical reversal of all" (Jameson, 1982, p. 449). Therefore, he considers the role of architect as the ideologist –directing the society through the spaces he/she creates– of the society. Tafuri mentions that the capitalist development caused the loss of the mission of architectural ideology. "Having arrived at an undeniable impasse due to the inherent contradictions of capitalist development, architectural ideology gives up its role as stimulus to the structures of production and hides behind ambiguous slogans contesting the 'technological civilization'" (Tafuri, 1969, p. 29). In addition, it faces being useless. "Artistic' uselessness, which one can also trace in the new architecture, is subtended, in the avant-garde, by a refusal; architecture, on the other hand, attains it through the necessity that binds the image to reality" (Scolari, 1973, p. 130). Thus, the eclecticism movement arises in order to find a way out of this uselessness.

"Trying to find a space out of the system of production in which to re-locate the work of the architect as intellectual, Tafuri realizes that the only possible place to re-locate architecture was outside the ideology" (Diaz, 2012). He thinks that the architect should have a new mission and consider the city as a *social machine*. Architecture became dependent upon capitalism and the public was made to believe that consumption is the best usage of the city. Moreover, instead of just being a designer, the architect should be an organizer and invite the public to participate in the consumption of the city.

Finally, Tafuri remarks that industrial design has the clue of being utopic and it is the new avant-garde. It creates the city through advertisements. As Akin (2005) stated, Smithsons said that advertisements try to sell a natural accessory of a way of life packed by informatics, not a product and the advertisements of mass production objects aim to establish a whole life pattern: principles, ethics, goals, associations, the standard of living. Hence, what is expected from architecture is creating a flexible social values system.

There are two main arguments – urban paths– of Tafuri that ideology turned into capitalist industrial utopia and industrial design is a new utopic sign. Ideology is a way of thought and the utopia is a designed form of ideology, so that both of them refer to an ideal thing. According to Tafuri, in order to suffer from this crime, ideology had to turn into

utopia because it was accused of being productive. As a result of the uncertainty that architecture falls in because of capitalism, it began to serve as an integral part of mass production. So, how does architecture serve capitalism? As in every sector, the industrialization that occurred in building production created standardization. According to Tafuri, instead of suggesting methods or models, architecture consists of gathering manufactured parts of mass production. From the ideological point of view of Tafuri, architecture no longer directs society with its forms; it becomes a means of capitalist production. The society is convinced that consumption is the most ideal way of life and it symbolizes the downfall of reason by serving it.

The question here is; is it a negative situation as Tafuri sees, that architecture serving to capitalism? What did architecture serve before capitalism? Architecture that serves to capitalism as the power element of contemporary world, served to power also in the past, for example, churches in the Middle Ages and Ancient Greek aristocracy. We can see that the working class in capitalism is similar to the peasant in the Middle Ages and the slaves in Ancient Greek. Moreover, certain freedoms of the working class are protected by law in the world where slaves had no freedom. When we have a look at architecture, for example, churches were located in the centre of all the cities established in the Middle Ages, and the architectural styles contained spiritual images. Even today, it is possible to read these traces as we look at the towns established in the Middle Ages. Architecture has adapted itself to this phase, like other disciplines, in the inevitable era in which mass production arose as a result of technological developments and the industrial revolution became a dominant power. Architecture, which adapts to the new process, can still fulfil its ideological missions, which are also realized by the structures for the new lifestyles that it creates.

Tafuri was thinking that modern architecture was in a crisis; however, this crisis was not a result of *exhaustion*. The real reason was that there was a crisis in architectural ideologies. In other words, architecture was attached strongly to the ideology and so, it was politicized (Aras, 2015, p. 102). After capitalism, the rapidly developing industrial design products and the advertising used to promote them became the constituents of the city. Now, the expectation from architecture setting up a system of flexible social values based on the social machine logic.

3. PARAMETRIC DESIGN AND FLEXIBLE SPACE

In *The Autopoiesis of Architecture I: A New Framework for Architecture* (2011) and *The Autopoiesis of Architecture II: A New Agenda for Architecture*, Patrik Schumacher (2012) defines the contemporary architectural style as *Parametricism* (3). Parametricism approach is based on the idea that architecture is a communication tool. “The unique, societal function of architecture: to order and frame communicative interaction” (Schumacher, 2016b). The perception of the

identity of space gives us clues about it, with the cognition; we decide how to behave in that space. Schumacher (2016a, p. 109) states that:

The social functionality of architecture resides to a large extent in its communicative capacity. The built environment orders social processes through its pattern of spatial separations and connections that in turn facilitates a desired pattern of separate and connected social events. This is social organisation via spatial organisation.

The interaction is not just between people, but between people and the built environment as well, the built environment also creates interaction between people. “The whole built environment must become an interface of multi-modal communication, as the ability to navigate dense and complex urban environments has become a crucial aspect of today’s overall productivity” (Schumacher, 2013b). As Kamp states, “the interaction takes place in an environment” (Kamp, Veen, & Vink, 2015, p. 281). Moreover, communicating is not only about consuming space and spending time in it, but any relationship with space is communication. “Both a designed space and the act of entering the space are communications” (Schumacher, 2015).

Even though “every design is driven by the constraints of the site, brief, environmental conditions and local planning requirements, rather than based on standard ‘typologies’ or customisable templates” (Bell & Simpkin, 2013, p. 89), architecture is innovative, theory-led and architectural knowledge and spatial organisation has gained a new approach by parametric design. It is available to create spaces that have strong characteristics. “Parametric design is a powerful methodology to achieve a new architectural morphology, namely a morphology of continuous differentiation” (Schumacher, 2016b). It is a rule-based differentiation and correlation system, morphology of continuous differentiation. It is an ordered complexity. It is possible by parametric design to increase the information about the built environment.

Parametric design, conceived as a network of relationships or dependencies, establishes relationships between various elements of the composition. Parametric design builds up a connection between architectural geometry and performative parameters of climate, structure, material, and behaviour. “The designer might choose and calibrate the adaptive correlations between the subsystems so that the different systems do indeed become ‘representations’ of each other in the sense that users navigating the urban environment can not only follow the gradients or vectors of transformation in each of the subsystems” (Schumacher, 2016d). This design method has an important advantage that as new information is fed into the design process, the detail solution and the build-up of the design complexity can progress simultaneously with maintaining the malleability to adapt to the changing requirements. Also, “parametricism that allow contemporary architects to ramp up the communicative complexity of the built environment are also congenial to the agenda of optimizing

architectural forms with respect to ecological performance criteria” (Schumacher, 2010a). Considering that architecture is responsible for the social functionality of the built environment, “this powerful enhancement of the communicative capacity of the built environment via rule-based parametric design goes to the heart of architecture’s societal function of ordering the multitude of social interaction scenarios that make up contemporary society” (Schumacher, 2016b). Architects need to analyse the sociological drive of the life processes of clients and strategically introduce their ordering capacity into the game. “The task is to design an information rich, dense built environment that orders and codes/reveals the manifold social interactions to be expected within its spaces” (Schumacher, 2013a). The designer devises and formulates rules or correlations much the same as the laws of nature.

Architecture is one of those great function systems of contemporary society that is functionally differentiated, and architecture is actively involved in the evolution of society. “The mass society that was characterised by a universal consumption standard has evolved into the heterogeneous society of the multitude, marked by a proliferation of lifestyles and extensive work-path differentiation” (Schumacher, 2008). From the perspective that architecture should be a tool for organizing social processes, “society demands that architecture has to adapt” (Schumacher, n.d.-b). If all the problems of society are communication issues, communication emphasis is a prerequisite for rising social effectiveness of architecture. “Form powers function. That’s the new thesis. Spatial organization sustains social organization” (Schumacher, 2010b).

Schumacher refers that mass society is very diverse in the global era, which is a similar thought of Sennett. Each of us has the skills we need for the business world and the qualities we have to be able to exist in social life in different environments. Therefore, we live with all these diversities and consume spaces accordingly.

Another point that Schumacher emphasizes is similar to Tafuri’s architectural ideology thought. By mentioning that architecture should direct social processes, he changes the famous statement of Mies van der Rohe *form follows function* into *form powers function*. According to this, architecture, which can direct social relations with its form, can respond to the diversity of society.

Parametricism is versatile and rich, it has the associative tools to build up the complex, a variety of order that contemporary society requires. “Parametricism is not only a new methodology for generating form but also a new paradigm of understanding social function” (Schumacher, 2014). Llabres & Rico (2012, p. 85) states that “design is making sense (of things). It is, therefore, the task of the designer to understand both the target audience and the project in order to strike a balance between parameters, values and tacit forms of algorithms”. Parametric design offers a new, dynamic order through concepts of distinction and

comparison, with the goal of intensifying internal dependencies in architectural design as well as external dependencies and consistency in a complex urban context. “Aesthetically, it is the elegance of ordered complexity and the sense of seamless fluidity, akin to natural systems that constitute the hallmark of parametricism” (Schumacher, 2009). Parametric design changes the homogeneous identification of modernism and differentiates it with its capacity to adapt to local site conditions, climates, contexts, etc. “Parametricism is architecture’s answer to contemporary, computationally empowered civilization” (Schumacher, 2016c).

Our lives are constantly changing in the information era. We are moving constantly in this world where everything is evolving and consumed rapidly. We are traveling, trying to catch up and in a rush. While the time we spend anywhere becomes more limited, we gradually lose our sense of belonging to all places. In order to exist in this capitalist world, we need to be flexible individuals.

While the world and us, people are so flexible and mobile, architecture remains rigid. While it profits from the processes of capitalist production, it does not provide the flexibility that the capitalist life requires. As Tafuri mentioned, architecture, which was previously ideological, no longer fulfils this task and the question is here if architecture gets out of date.

Is it possible that architecture would find the answer in parametric design in order to respond to this variability? Is it possible that parametric design, which uses too many inputs, produces the spaces that people require? Is it possible that architects, who should be ideologues of the society, could lead the society through the forms they create with parametric design?

CONCLUSIONS AND RECOMMENDATIONS

To sum up the ideas of Sennett and Tafuri, flexibility and change are at the forefront in the world of late capitalism. Work life forces employees to be flexible. Architecture, on the other hand, serves capitalism using the means of production, but cannot fulfil its ideological task. Based on the claims of Patrik Schumacher in Parametricism manifesto, parametric design may be the method to design the spaces needed by this flexible and changing world, by using variable inputs to create differentiated spaces according to these inputs.

As Tafuri pointed out, architecture was leading society by performing an ideological task before capitalism. According to him, architecture lost its ideological task, because it is in a downfall by serving capitalism. Large cities that arose by mass production became the centre of alienation. Architecture could no longer resist this situation, salvation surrendered instead of revolt. The critical approach of Tafuri to the task of architecture in a capitalist world has led this paper to question the relationship between architecture and capitalism.

Our lives go on roads, in airports, in shopping malls or in hotels. This is what the global era brings us. By means of neoliberal policies, capital began to circulate around the world, time and space are stuck. Economies are now revolving around structures where knowledge is organized at the centre, production and distribution are organized in the environment. Therefore, employees are forced to travel.

We go to and work in unidentified places during these travels. While production is so mobile, employees have to be mobile. Not only they have to be mobile, but also, they have to be flexible to keep up with the changing world and economy. Flexible labour is an important issue in the world that is created by late capitalism, which leads to corrosion of character. Employees, who have to develop different skills in order to be present in business life, create variations in the society with their diversity and with the current lifestyles in the global world that we are in. Everything is in rapid change. Architecture must adapt to this rapid change and diversity. Or, on the contrary, by adapting to the flexible world created by capitalism that architecture serves to, they can pave the way for social collapse and accelerate the process further.

Considering the discourse of Tafuri that architecture serves to capitalism, architects can create new spaces by making use of capitalist production tools. These new spaces can meet the needs of diverse societies where Sennett speaks of people who develop different skills to adapt to the flexible business life. In order to respond to the diversity, these spaces can be flexible like the individuals they serve to. These flexible spaces can adapt themselves to changing situations. Hereby, people can also create special and unique areas while being part of a space temporarily. Flexible, variable and unique spaces needed by the flexible society can be realized with parametric design which is mentioned by Schumacher in the Parametricism manifesto. With the help of parametric design, special spaces can be created which are specific to the place, can be shaped according to different parameters and even transformed individually. People may acquire the speciality they need in a space by transformations. While providing these designs by using parametric design to respond to variables, convertible spaces can also be provided by kinetic architecture.

Through these contributions, perhaps architects may really serve as social ideologues. Not only they do design spaces, but also, they may think about how these spaces are going to affect the lives of people. They may design spaces that serve to different functions and create spaces that are able to be transformed with the advantages of kinetic architecture which can respond to variabilities with the advantages of parametric design. In this way, architecture may not only serve to the flexible world of capitalism but also produce spaces that is live all the time. Thus, the vitality of the streets that Jane Jacobs mentions may be present in these living places.

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(1) According to Hardt & Negri (2000, p. 290) “Since the production of services results in no material and durable good, we define the labor involved in this production as immaterial labor—that is, labor that produces an immaterial good, such as a service, a cultural product, knowledge, or communication”. For more information, see *Empire* (2000) by Hardt & Negri.

(2) Industrial design was a new utopic sign although it was serving the necessities of the reorganisation of production. It was the discrepancy of Bauhaus.

(3) It would be good to make a personal note here. Even though I mostly agree with Schumacher’s ideas about the complexity of society and parametric design can respond to the needs of this complex society, I disagree that parametric design is a style. I have similar thoughts with Gage (2016, p. 130) “Schumacherian Parametricism’ is neither a style nor a movement, but merely a now ubiquitous 21st-century technology coupled with a stylistic preference for topologically derived (smooth) digital surfaces – an aesthetic to which, in the interest of full disclosure, I also have affinities. Parametricism as a technology, however, inherently has no style, and can be used to support any number of ‘styles’. There is no reason that a Tuscan-style suburban house cannot be technologically parametric – in fact, because of various building information modelling (BIM) technologies, most already are. As he mentions, instead of being a style, it is a design system that is based on correlations and it can benefit from the technological improvements. In addition, any style can be brought into life with this robust system even though the circumstances change”.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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LEGAL PUBLIC/PRIVATE PERMISSIONS

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Resume

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Investigation of Buildings in Alaçatı in Terms of Energy Efficiency in Architecture

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Abstract

Purpose

Due to the depletion of natural resources, energy efficiency in buildings has increasingly gained a major priority. As vernacular houses contain accumulated knowledge to adapt to the climate, they have been crucial examples of energy-efficient architecture for the designers. In this manner, the study focuses on Alaçatı vernacular houses. The purpose of the study is to investigate and compare the energy-efficient architecture properties of different types of tourism accommodation buildings.

Design/Methodology/Approach

The accommodation buildings are grouped into three categories, namely “Accommodation buildings converted from vernacular houses of the area”, “New accommodation buildings designed in the style of vernacular houses”, and “Accommodation buildings that have different architectural styles”. Selected three sample buildings from each group are evaluated by energy efficiency principles. Building energy simulation models of the nine case buildings in total are developed to determine the building components’ contribution to energy consumption by heating and cooling. The values from energy modeling are used to compare the buildings according to the checklist.

Findings

According to the results of the study, the density of space, natural ventilation, shading elements, and pitched roof type specialties of vernacular buildings reduce heating and cooling load. However, traditional stone load-bearing walls and bay windows, which are the most significant element of the building form, increase the annual energy demand. At the end of the study, Alaçatı Energy-Efficient Architecture Database Schema is presented in Table 10 as the outcome of the study.

Research Limitations/Implications

The evaluation of the case buildings merely depends on the annual cooling and heating energy loads of nine randomly selected buildings.

Practical and Social Implications

The assessment method used in the study provides the opportunity to identify the proportion of the effect of energy efficiency properties on the total heating and cooling load. Furthermore, the “Alaçatı Energy-Efficient Architecture Schema” presented as the ultimate product of this study is expected to guide the architects to design energy-efficient accommodation buildings, without compromising the vernacular architectural appearance of Alaçatı.

Originality/Value

The study focuses on the separate effects of the properties of Alaçatı vernacular architecture, instead of focusing on one property, or comparing case buildings on the energy consumption.

Keywords: *Energy efficiency, sustainable architecture, climate responsivity, Alaçatı, vernacular architecture*

INTRODUCTION

Tourism is one of the crucial economic sectors of countries and creates a potential for the welfare and development of society. Because of its diversification and expansion, tourism has become the world's largest and fastest-growing sector in the last 60 years. Especially, due to its contribution to the job creation power and the gross domestic product, the cities based on the tourism sector have been subjected to rapid growth and change. If the correct decisions and precautions are not taken immediately, this rapid growth and change may lead to an imbalance between the “people – nature – tourism area” (Lane, 1994).

Alaçatı district of Çeşme is one of the tourism centers that have been subjected to a rapid change in terms of economic, social, and ecological perspectives. As a former small agricultural village, Alaçatı became one of the popular tourism centers of Turkey, after the publicity of cultural attributions, authentic architecture, and the shores available for windsurfing in the 1990s (Gezgin, 2007). Following the investments and tourism plans made in the 2000s, increasing tourism demand led to the need for accommodation buildings. The vernacular houses of Alaçatı were converted into hotels, and new accommodation buildings were constructed, in order to meet the accommodation needs (İnce, 2013).

In Alaçatı, the energy demand by constructions and the consequent damage to the environment continues increasing day by day. The balance between comfort requirements and damage to the environment in accommodation buildings depends on the integration of energy efficiency principles in building designs. In this context, energy-efficient architecture features of the accommodation buildings with different architectural styles in Alaçatı are the focus of the present study.

In recent years, significant numbers of researches have highlighted the importance of energy-efficient features in vernacular architecture (Eyüce, 2007; Koca, 2019; Liu et al., 2010; Rasulo, 2003; Singh et al., 2009). The research methods in this area have shifted towards the use of building energy modeling software to evaluate the energy efficiency features of vernacular dwellings (Alzoubi & Almalkawi, 2019; Bencheikh & Bederina, 2020; Gou et al., 2015; Meiting & Linxue, 2019; Michael et al., 2017; Mohammadi et al., 2017). Since Alaçatı is a district with vernacular buildings and new buildings that contain the features of vernacular architecture, it is a unique case study area to test the alleged idea in these studies that “vernacular buildings and their design principles are always sustainable”. According to that, the energy efficiency features of the accommodation buildings in different architectural styles and forms in Alaçatı constitute the scope of the study. The purpose of the study is to identify and to compare these specialties of the accommodation buildings in different architectural styles. In order to make a convenient evaluation, building energy modeling is employed in the study. The study aims to generate design guidelines based on the empirical results for the future buildings to be designed in Alaçatı.

LITERATURE REVIEW

Energy consumption of buildings comprises 40% of the total energy consumption in the world (Alanne et al., 2010). This ratio denotes the possible role of the buildings in the sustainability of natural resources in energy production. Therefore, reducing the energy consumption of buildings has been among the primary objectives of the developed countries, in terms of economic and ecological balance, and sustainability of the natural sources (Santamouris et al., 2001). Awareness of sustainable architecture and energy efficiency in buildings is inevitable to maintain the balance between culture - economy - ecology in all around the world (Bodach et al., 2014).

Even though sustainable architecture is discussed and subjected as a purpose in practice, its extent has not been identified exactly, and it lacks a definition (Baweja, 2014). Over the years, sustainability in architecture has been called by environmental design, green architecture, climate-responsive architecture, ecological architecture, eco-friendly architecture, intelligent architecture, energy-efficient design, and energy responsive-architecture. However, the implementation of sustainable architecture in the last decade can be considered in three groups, namely 1) eco-centric, 2) eco-technic and 3) eco-social (Durmuş Arsan, 2008).

Eco-centric understanding alleges the idea that the buildings have negative effects on the environment. This approach offers that sustainable architecture aims to lower the negative effects of the buildings by the consumption of sources (Eyüce, 2007). On the contrary of eco-centric understanding, the eco-technic approach claims that the structures are interventions on the environment. It defends the idea that the buildings can be designed in harmony with the environment by using technological developments, thus they can have positive effects on nature (Durmuş Arsan, 2003). Eco-social understanding puts people at the center of architecture. It proposes that buildings should be designed concerning cultural and historical values in a way that supports and improves the social life, cultural values, and health of humanity (GhaffarianHoseini et al., 2013).

Sustainable architecture has evolved as a mixture of these understandings, goals, and concerns mentioned above, and gained a general definition. It refers to a climate-responsive, energy-efficient, respectful act on the social and cultural life of the place, and a sense of building design that has minimal impacts on natural resources, economic, green and ecosystems (Bennetts et al., 2003). Sustainable architecture adopts the goal of reducing the consumption and continuation of resources while improving the quality of human life by ecological and technologic approaches. Within this broad definition of sustainable architecture, the present study focuses on the energy efficiency strategies of the vernacular houses in Alaçatı.

Several studies have evaluated the energy efficiency strategies of vernacular buildings without utilizing an energy modeling software, simply by listing these features. Anna-Maria (2009) inspected the energy efficiency properties of the vernacular houses of Sernikaki, a Greek settlement. In the study, the detection of the orientation to the wind and sun, positioning, ventilation strategy, openings, building envelope, and material properties of the houses were introduced. It was suggested that these architectural specialties should be utilized as a guide for the new houses designed in the region. Manzano-Agugliaro et al. (2015) viewed the energy efficiency specialties of vernacular architecture of the world's climatic regions. Distinct climate areas possess distinct types of architectural design, spatial organization, and planning. The study drew attention to the acquisition of energy efficiency principles that would result in a comfortable indoor environment and less energy demand by the buildings. Dili et al. (2010) appraised the energy efficiency features of the vernacular architecture of Kerala. It was suggested that the use of modularity in architectural design, internal open courtyards, proportions, scale, exterior open spaces, building orientation, and local materials results in achieving a comfortable indoor environment while saving energy. The study proposed that these energy efficiency features of vernacular houses in Kerala can be applied in modern houses in similar climatic regions. Fernandes and Mateus (2012) presented the energy efficiency properties of multiple types of Portuguese vernacular houses. Concerning the adaptation to the climate of the region, various strategies were implemented in the vernacular houses in the area. These passive design strategies were the organization of the placement of the houses in the villages, promotion of natural ventilation, reducing the solar gains in summer, capturing solar gains in winter, reducing heat transfer through the building components, and provide efficient management of sources. Even though these studies evaluated the energy efficiency features to a broader extent, they lacked providing the empirical equivalents of these strategies as they did not use any energy modeling software.

The studies in the area of sustainable features of vernacular architecture have a trend towards quantitative research methods lately. According to Nguyen et al. (2019), starting from the year of 2011, quantitative research methods use rate increased by 8.4%, while qualitative research methods use rate decreased by 16.6%, comparing to the studies on sustainable features of vernacular architecture between 1986 and 2010. These studies aim to evaluate the vernacular houses by calculating heating and cooling load demands. Alzoubi and Almalkawi (2019) compared the vernacular and contemporary dwellings in Northern Jordan by thermal comfort and energy consumption performance. Energy modeling results of 2 types of vernacular and 2 types of contemporary house units were presented in the study. According to the energy modeling results, the vernacular houses provide a more

comfortable indoor thermal environment, along with less amount of energy demand in winter and summer seasons. Michael et al. (2017) investigated the effect of natural ventilation on the interior thermal environment in the residential vernacular architecture of Cyprus. The study included different ventilation strategies during the summer period, so as to find the proper ventilation regime to achieve minimum cooling load. It was confirmed that natural ventilation has a positive contribution to the cooling in the vernacular architecture in Cyprus. Meiting and Linxue (2019) explored the differences between the traditional and contemporary dwellings of Zhejiang in terms of climate adaptability. The outcomes of the study suggested that the use of interior circulations like corridors and patios improves the thermal environment inside the houses. Along with that, the courtyards of the traditional houses with the use of natural stone material lower the energy demand in winter and summer. Bencheikh and Bederina (2020) compared the thermal performances and energy demand of a vernacular and a contemporary house in Laghouat, Algeria by energy simulation. The results of the study showed that the vernacular house reduces the energy demand by 39% and performs a more comfortable interior thermal environment. Mohammadi et al. (2017) revealed the effects of the use of vernacular climatic strategies of vernacular houses in Bushehr, Iran, in common residential buildings in the same region. In the study three energy models of the same case study house were created, which are the base model and improved models with the additions of the vernacular strategies. The results of the study showed that two improved models reduced the energy demand by 16% and %26, in comparison with the base model. Gou et al. (2015) investigated the vernacular energy efficiency strategies used by vernacular dwellings in the summer and winter seasons of China. It was revealed that these houses were powerful in adapting to the local climatic conditions and lowers the cooling load demand in the summer season.

These studies employed building energy modeling to evaluate the energy efficiency features of vernacular architecture in various regions and focused on the comparisons of overall energy demand. However, the separate effects of the vernacular architecture properties on the overall energy consumption were not investigated by any of these researches. Therefore, the present study goes further to fill this gap by using building energy modeling to reveal the effects of each energy efficiency specialty of Alaçatı houses respectively on the energy demand by heating and cooling. The case studies investigated in the study consist of three groups of accommodation buildings in Alaçatı. These are the accommodation buildings converted from vernacular houses of the area, the new accommodation buildings designed in the style of vernacular houses and the accommodation buildings with different architectural styles in Alaçatı. It is aimed to present if the architectural properties of the vernacular houses are truly energy-efficient when they are implemented in the new building designs.

METHODOLOGY

The main purpose of the research is to assess the accommodation buildings in Alaçatı in terms of building energy efficiency. According to this aim, the energy-efficient architecture features of different types of tourism accommodation buildings in Alaçatı are viewed in three categories:

- 1st Group: The accommodation buildings converted from vernacular houses of the area
- 2nd Group: The new accommodation buildings designed in the style of vernacular houses
- 3rd Group: The accommodation buildings with different architectural styles

These categories are separated from each other in terms of their architectural features in the construction and façade specialties. The accommodation buildings in the 1st group are located in the historical center of Alaçatı. They are the major buildings that create the authenticity and the tourism appeal of the traditional texture of Alaçatı. Regarding this, they have been an example of the new accommodation buildings in the area. The accommodation buildings in the 2nd group have the highest number in the area among the three groups of buildings. These buildings are located together around the historical center of Alaçatı with the buildings in the 1st Group. Therefore, they were designed by adopting the characteristics of Alaçatı's traditional architecture in order to comply with the traditional texture. The accommodation buildings of the 3rd Group are located in the northern part of the town. They do not carry the vernacular architectural specialties and have various styles in terms of façade appearance and building structure. In the study, the case buildings are chosen evenly among these three groups, as they are explicitly differentiated from each other.

The method of the study is based on an evaluation checklist, which is constructed from the literature review part of the study by the proper energy-efficient architecture features for the Alaçatı region. The evaluation checklist contains the following criteria:

- Building form,
- Shading strategy,
- Natural ventilation,
- The density of space,
- Building materials,
- Roof style.

To compare the effects of each criterion in the checklist, three case buildings from each group were selected for the study (Nine buildings in total). The case buildings were chosen according to make certain that they present different orientations, locations, densities of spaces, and form specialties for each group. The architectural floor plans of the case

buildings were presented respecting the groups in Table 1 respectively to the three different categories.

Table 1. Plans of the case buildings (Balbay, 2017; Çelik, 2010; KGCArchitecture, 2017; Seymen, 2010)

Group 1		
Building 1	Building 2	Building 3
Group 2		
Building 4	Building 5	Building 6
Group 3		
Building 7	Building 8	Building 9

The façade photographs of each building were given respectively to the building groups in Table 2.

Table 2. Façades photographs of the case buildings

Group 1		
Building 1	Building 2	Building 3
Group 2		
Building 4	Building 5	Building 6
Group 3		



The energy models of the nine case buildings were done in the Design Builder Program, which uses the Energy Plus Software database. The photo of the energy model of Building 1 was presented as an example in Figure 1.

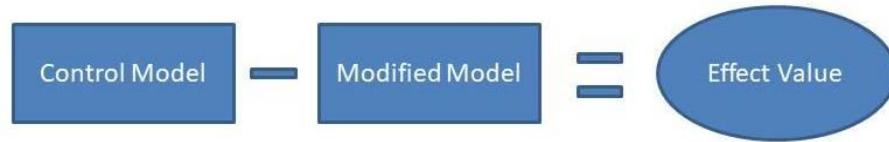


Figure 1. Photo, satellite view and energy model of the Building 1 (Google Earth, 2017)

Building user schedules, construction materials, and climate data were included in the energy models, to provide accurate energy simulations (Energy Plus, 2017). Building user schedules data were obtained by the survey with the occupants of the accommodation buildings. The building materials were defined by respecting the different building components of each building. The building material information of the case buildings was provided by the application projects and restoration drawings, which were taken from the archives of the designer offices and hotel administrations (Balbay, 2017; KGCArchitecture, 2017; Seymen, 2017). Air conditioning units were introduced in the buildings to measure the cooling load, while natural gas heating units were located for heating measurements. The space heating setback values were defined as 20°C for heating and 26°C for cooling in the models in compliance with the ASHRAE Standard 209 (Scott West et al., 2019). The evaluation of the study was limited to heating and cooling energy consumption values in kilowatt-hour (kWh).

In order to determine the effects of the checklist criteria on the building energy model, firstly the current energy demands of the buildings were taken as a “control model”. Later the models were altered according to the criteria, namely “modified model”. The difference between the energy consumption values of the control models and modified models corresponded to the effects of the criteria, which is called “the effect value” (Figure 2).

Figure 2. The procedure of finding the building components' effects on the energy demand



As an instance, to find the effect of a shading element on the cooling and heating load of a case building, the energy model is modified by removing the shading element. The difference in the energy demands of these two models represents the effect of the shading element on the cooling and heating load in kWh. As in this example, these phases were applied to all checklist criteria of the study.

Climate of Alaçatı

Alaçatı is located on the west coast of İzmir, Turkey. It shows the characteristics of the Mediterranean climate under the influence of the Aegean Sea breezes. According to Köppen Climate Classification, Alaçatı is under the 'Csa' section, which refers to the hot and temperate climatic region (Rubel & Kottek, 2010). The average air temperature varies between 15°C - 38°C in summer days, while in the winter days it changes between -2°C - 16°C (Figures 3 and 4). Heat gain by direct sun radiation varies between hourly 650 Wh/m² and 110 Wh/m² in a day. Mean relative humidity in a month is 50%, while in the winter days it is 70%. The prevailing wind direction is north-west with an average speed of 5 m/s. It annually blows 300 days on average. The consistent winds from the south and north directions together with the breezes from the Alaçatı Bay create possibilities for passive cooling by natural ventilation techniques (Climate: Alaçatı, 2017; Energy Plus, 2017; Terim, 2011).

Figure 3. Air temperature values of Alaçatı (Climate: Alaçatı, 2017)

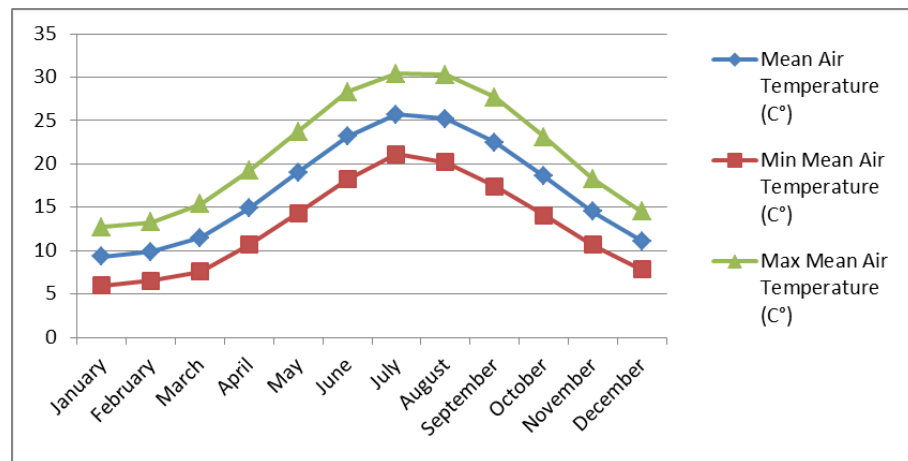




Figure 4. Location of Alaçatı (Google Earth, 2018)

Research Limitations

The evaluation of the buildings merely depends on the effects of the structural components of the case buildings on the annual cooling and heating energy demand. The architectural specialties of Alaçatı vernacular houses are not assessed in terms of their originality or coherence to the conservational quality. The study is limited to 9 randomly selected buildings, and all the case buildings are assumed to be using air conditioning units for cooling and gas-fuelled heating units for heating purposes. Since the building energy models employ the weather data of İzmir, which is provided by Adnan Menderes Weather Station, the outcomes of the research are only valid and applicable to the climatic region of Alaçatı.

DISCUSSION OF RESULTS

The results of the assessment are presented in this section according to the checklist of energy efficiency in architecture. The effects of the specific criterion on the annual building energy demand by cooling and heating are included in the tables respectively to the nine case buildings.

Building Form

The case buildings have various forms such as rectangular prism, square, “L” and “C” shapes. It is seen that the building forms tend to protect the most occupied spaces from the direct sun exposure in summer and the prevailing winds in winter. Only in the accommodation buildings from Group 1 and Group 2 contain extensions such as bay windows and balconies. Bay windows carry the potential to work as sunspace in winter and provide shading in summer. They are the most significant components of the vernacular buildings of Alaçatı and have the availability to play a role in energy efficiency (Figure 5).



Figure 5. Bay window of Building 2

However, in the study, it was seen that the bay windows increase the heating load in winter up to 11.4%, while they do not have a significant effect in summer according to the simulation results. The reason for this result is that these components widen the area that loses heat to the outside, and they are not located in the correct façades (Table 3). It would be more energy-efficient to utilize bay windows on the south façades with interior separations in the climate of Alaçatı. In that case, the bay windows can be used as a sunspace, which can be isolated in winter to work as a buffer zone to lower the heat transfer rate. In the summer period, the separation and the windows of the bay windows need to be opened to create cross ventilation through the building. Balconies and other extensions also need to be in the south façades, as the angle of the sun can be controlled easily in this direction in both winter and summer.

Table 3. The effect of bay windows on energy consumption

Group 1		
Building 1	Building 2	Building 3
Heating: +5.3% Cooling: -0.2% Total: +3.1%	Heating: +8.4% Cooling: +2.5% Total: +5%	There are no bay windows
Group 2		
Building 4	Building 5	Building 6
Heating: +6.7% Cooling: -3.4% Total: +1.8%	Heating: +1% Cooling: +0.5% Total: +0.8%	Heating: +11.4% Cooling: -2.3% Total: +4%
Group 3		
Building 7	Building 8	Building 9
There are no bay windows	There are no bay windows	There are no bay windows

Shading Strategy

Shading strategy is an eminent factor for all the buildings in Alaçatı, as avoiding the direct sun in the prolonged summer period lowers the cooling energy demand crucially. The buildings in Group 1 are under the shading effect of the neighbor buildings, while the others are exposed to the sun during the day, except the case of Building 8. Among all case buildings, only number 8 and 9 have adjustable shading devices on the windows, while the others do not have such shading devices. In order to see the effect of the shading elements in the energy models, shading devices were added to all buildings and compared with the model versions that do not have shading elements. According to the results, the shading devices reduce the cooling load in summer by 29% to 3% in the buildings depending on the window area and orientations (Table 4).

Table 4. The effect of shading devices on energy consumption.

Group 1		
Building 1	Building 2	Building 3
Heating: +2% Cooling: -3% Total: +0.1%	Heating: +15% Cooling: -16% Total: -2%	Heating: +3% Cooling: -8% Total: +0.8%
Group 2		
Building 4	Building 5	Building 6
Heating: +11% Cooling: -13% Total: -1%	Heating: +1.8% Cooling: -8% Total: -1.2%	Heating: +15.5% Cooling: -15.8% Total: -1.3%
Group 3		
Building 7	Building 8	Building 9
Heating: 0% Cooling: -23% Total: -7%	Heating: 0% Cooling: -29% Total: -7%	Heating: 0% Cooling: -26.2% Total: -6,3%

The buildings with wider facades and more windows to the west and south have higher energy efficiency from the shading devices. It was observed that shading elements increase the heating load in winter, as they prevent the heat gains from the sun. According to that, shading devices should be selected operable according to the time of the year.

Natural Ventilation

Natural ventilation is employed to provide fresh air and climate control in all the case buildings. The effects of natural ventilation in the case buildings are presented in Table 5. It was seen that natural ventilation has a potent role in reducing cooling energy in summer. In all case buildings, except Building 4, natural ventilation decreases cooling load between 2.8% and 20%. However, it was detected that natural ventilation does not have any effect on heating load, as it is only utilized to provide fresh air in winter.


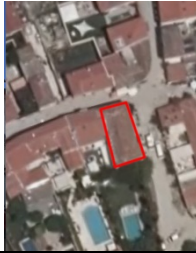

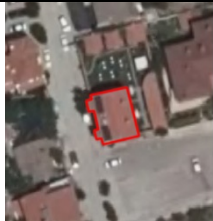

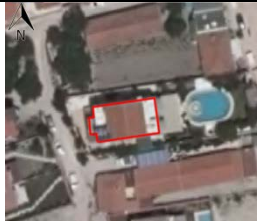
Table 5. The effect of natural ventilation on energy consumption

Group 1		
Building 1	Building 2	Building 3
Heating: +0.3% Cooling: -20% Total: -7.6%	Heating: +0,1% Cooling: -7% Total: -4%	Heating: 0% Cooling: -5% Total: -2%
Group 2		
Building 4	Building 5	Building 6
Heating: 0% Cooling: +1,2% Total: +1%	Heating: 0% Cooling: -6.5% Total: +1%	Heating: +0.3% Cooling: -2.8% Total: -1.4%
Group 3		
Building 7	Building 8	Building 9
Heating: +0.9% Cooling: -4.3% Total: -1.3%	Heating: 0% Cooling: -3.5% Total: -0.8%	Heating: 0% Cooling: -3.6% Total: -0.9%

The Density of Space

The accommodation buildings converted from vernacular houses are located in the high-density texture of the center of Alaçatı. The satellite views of the case buildings are given in Table 6 to present the conditions of the density of space. As it is seen, the case buildings converted from Alaçatı vernacular houses (Buildings 1, 2, and 3) possess high-density neighborhoods. These buildings are adjacent to other buildings from least on one side, and the roads in front of them are narrower. The other case buildings have a low-density neighborhood except Building 7.

Table 6. The satellite views of the case buildings (Google Earth, 2017)

Group 1		
Building 1	Building 2	Building 3
		
Group 2		
Building 4	Building 5	Building 6
		
Group 3		
Building 7	Building 8	Building 9



As indicated in Table 7, the relationship between the building and its density of space is crucial in terms of heating and cooling energy consumption. The reason is that high-density neighborhood helps to lower the effect of winds in winter and provides shading in summer. According to the results, Buildings 1, 2, 3, and 8 profit from the reduction of energy consumption by the neighbor buildings, up to 16% in winter and 53% in summer. However, the buildings located in a low-density neighborhood are not under this effect, as they are exposed to the direct sun light and the consistent winds of Alaçatı.

Table 7. The effect of the density of space on energy consumption

Group 1		
Building 1	Building 2	Building 3
Heating: -0.8% Cooling: -8.3% Total: -3.7%	Heating: +16% Cooling: -20% Total: -19%	Heating: -7% Cooling: -53% Total: -21%
Group 2		
Building 4	Building 5	Building 6
Heating: 0% Cooling: -3.2% Total: -1.4%	The building does not have any neighborhood buildings	The building does not have any neighborhood buildings
Group 3		
Building 7	Building 8	Building 9
The building does not have any neighborhood buildings	Heating: -4.5% Cooling: -28.5% Total: -38.4%	The building does not have any neighborhood buildings

Building Materials

Natural stone load-bearing walls are one of the very significant construction specialties of the accommodation buildings: converted from vernacular houses of Alaçatı. It was observed that natural stone load-bearing walls in the buildings in Group 1 increase heating and cooling load comparing to insulated brick walls in the other building groups. The reason for this is the porosity of the natural stone that enhances air leakage. Therefore, heating or cooling the interior air requires more energy. On the other hand, the insulated walls show a positive performance between 7.6% and 21% in terms of decreasing overall annual energy demand (Table 8).

Table 8. The effect of building materials on energy consumption

Group 1		
Building 1	Building 2	Building 3
Heating: +2,6% Cooling: -1.1% Total: -1.2%	Heating: +7% Cooling: +1.5% Total: +4%	Heating: +8% Cooling: +1.5% Total: +6%
Group 2		
Building 4	Building 5	Building 6
Heating: -37% Cooling: -4.7% Total: -21.4%	Heating: -11% Cooling: -5.6% Total: -10%	Heating: -14.1% Cooling: -2% Total: -7.6%
Group 3		
Building 7	Building 8	Building 9
Heating: -16% Cooling: -1.1% Total: -10%	Heating: -8.3% Cooling: -2.8% Total: -7.9%	Heating: -13% Cooling: -4.2% Total: -10.9%

Roof Style

The case buildings in all three groups have gable or pitched roof types with interior wood ceiling applications attached to them. The unoccupied space between the roof and ceiling behaves as a thermal buffer space against the exterior thermal conditions. This unoccupied zone lowers the heat transfer rate in the winter and summer seasons. However, in all case buildings, these buffer spaces prevent passive heat gain by direct sun exposure on the roof in winter, and consequently increase the heating load between 27.6% - 0.6%. The effects of roof styles of the case buildings are presented in Table 9.

Table 9. The effect of roof style on energy consumption

Group 1		
Building 1	Building 2	Building 3
Heating: +0.6% Cooling: -6.1% Total: -2%	Heating: +2% Cooling: -4% Total: -1%	Heating: +8% Cooling: -14% Total: -1.5%
Group 2		
Building 4	Building 5	Building 6
Heating: +5% Cooling: -1.2% Total: -2%	Heating: +10% Cooling: -9.4% Total: +6.3%	Heating: +16.7% Cooling: -7% Total: +4%
Group 3		
Building 7	Building 8	Building 9
Heating: +27.6% Cooling: -26.6% Total: +5%	Heating: +11.6% Cooling: -9.5% Total: +6.6%	Heating: +2% Cooling: -7.4% Total: -0.3%

Overall Assessment of the Results

The results of the effects on the energy demand of the checklist criteria were introduced in the previous sections. In this section, the overall results are presented concerning the accommodation building groups (Figures 6, 7, and 8). According to the graphs, the most significant criterion on reducing the total energy demand is the effect of the density

of space. The most significant impact of the density of space was seen in the cooling load of Building 3 by 53%. The criterion that reduces the heating load the most is building materials. The effect of the insulated brick walls lowers the heating load by 37% in Building 4.

All case buildings carry specialties to reduce the annual cooling load against the hot climate of Alaçatı. However, some criteria increase the heating load while reducing cooling load significantly, such as roof style, shading elements, and bay windows. This situation is visible in the case of Building 7 clearly, as its roof reduces cooling load by 26.6%, while increases heating load in winter by 27.6%.

In terms of building groups, high-density neighborhoods, natural ventilation, and roof style specialties of the accommodation buildings in Group 1 are found more effective in comparison with the other buildings. However, the effect of bay windows and natural stone walls increases the energy demand and creates disadvantages comparing to the other building types.

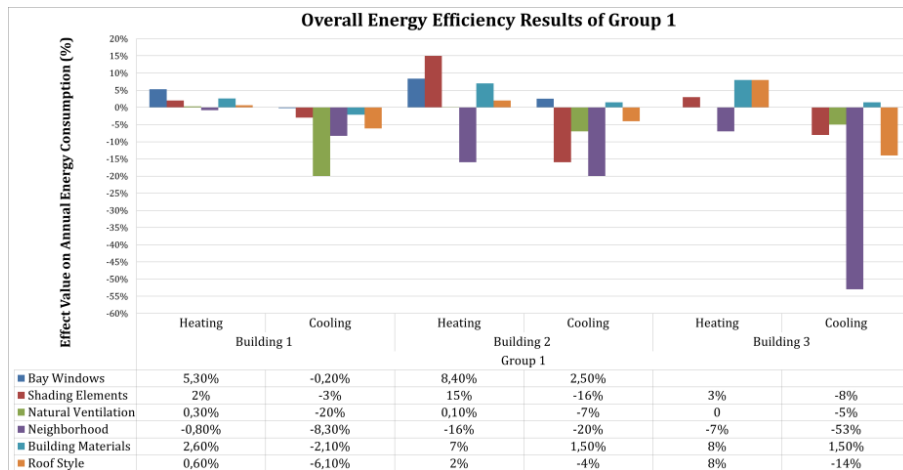


Figure 6. Overall Energy Efficiency Results of Group 1

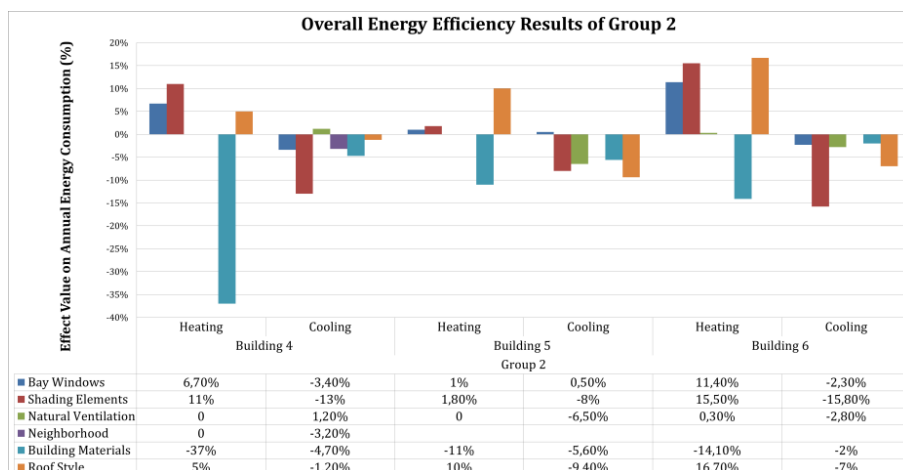


Figure 7. Overall Energy Efficiency Results of Group 2

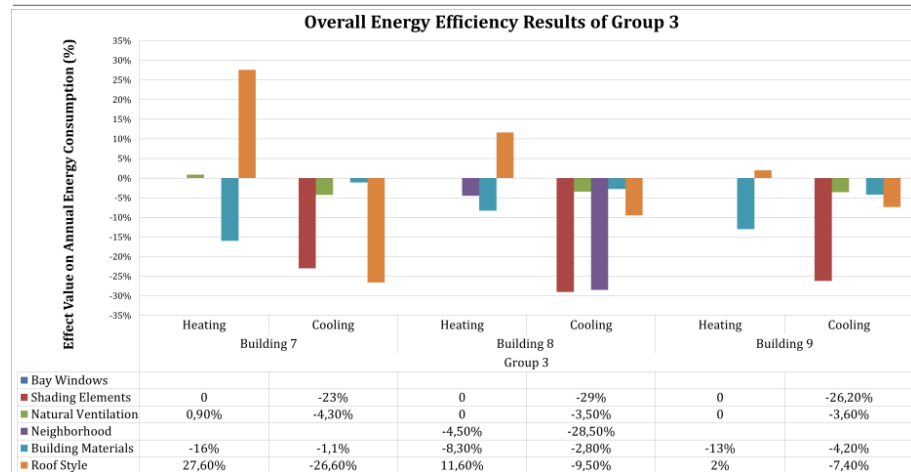
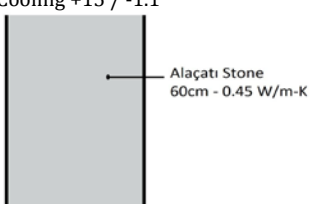
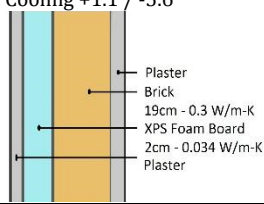


Figure 8. Overall Energy Efficiency Results of Group 3

As the ultimate result of the study, “Alaçatı Sustainable Architecture Database Schema” is presented in Table 10 to guide designers that work in Alaçatı province. From this schema, each criterion is not expected to be utilized simultaneously. Rather, they are expected to be used, only if the conditions comply with the specific building conditions. In case of the proposed design data for a criterion cannot be employed, other given options may be applied to achieve an energy-efficient design. The effects on heating and cooling energy demand written under the specialties represent the minimum and maximum values obtained in the present study. The suggestions to the design decisions are listed respectively to the six evaluation criteria.

Table 10. Alaçatı Energy-Efficient Architecture Database Schema

Design Criteria	Design Decision		
Orientation	<p>South orientation</p>		
Building Form	<p>Rectangular</p>	<p>L Form</p>	<p>C Form</p>
	<p>Use of bay windows Heating +11.4 / +1% Cooling +2.5 / -3.4% On the south façade as a winter garden</p>		<p>Use of balconies On the south façade as a shading element</p>
Shading Strategy	<p>South façade Overhang</p>		<p>West and east façades - Louvers</p>
The Density of Space	<p>Adjacent order Heating -0.8% / -4.5% Cooling +8.3% / -53%</p>		<p>High-density neighborhood Heating 0% Cooling -3.2%</p>
	<p>Low-density neighborhood</p>		

Building Materials	Vernacular stone wall Heating +8 / +2.6 Cooling +15 / -1.1 	Insulated brick wall Heating -8.3 / -37 Cooling +1.1 / -5.6 
Roof Style	Gable roof Heating +8 / +0.6 Cooling -1.2 / -14	Pitched roof Heating +27.6 / +2 Cooling -4 / -26.6
Natural Ventilation	Heating +28 / 0% Cooling +3 / -29%	

Necessary information about the schema is as follows:

- South orientation is the most appropriate for the new accommodation buildings to be designed in Alaçatı.
- Choosing rectangular, “L” and “C” forms is significant in terms of energy efficiency in the climate of Alaçatı. If the rectangular form is selected, the orientation of the guest rooms should be located in the south. Adjacent walls should be faced to east and south directions if this form is selected in a high-density settlement. Because of its availability to modularity and articulation, rectangular form is the most appropriate for the climate of Alaçatı. If the “C” form is preferred, the orientation of the inner garden should be in the south direction as in Building 9. In case of choosing “L” form, like Building 5, the garden should be oriented towards the south and east.
- In the case of using bay windows, south façades should be preferred to create shading control in summer. Also, the use of bay windows as a sunspace by closing it with a sliding and folding glass separator can contribute to energy efficiency.
- In the case of using semi-open spaces such as balconies, designing them as shading elements on the south façade can be beneficial to reduce the cooling load in the summer.
- Overhang shading in the south façade, louver type shading elements in the west façade should be preferred. The selected shading elements should be operable so that they can be canceled in winter and activated in summer by occupants.
- Preference of stone cladding on the insulated brick wall is the most suitable choice for adaptation to the traditional texture and reducing heating and cooling load.
- It is significant to create an insulated thermal buffer space between the roof and ceiling.
- Windows should be located on the south and north sides to provide cross ventilation since natural ventilation is for energy efficiency.

- Around the buildings, deciduous trees should be preferred for the southern side, and evergreen trees should be considered in the western and eastern sides.
- Guest rooms should be located in the south direction, while less occupied spaces should be placed in the west and east directions. Building entrances should be preferred in the north direction.

Implementation and the Impact of the Results

The results showed the influences of the inherited specialties of vernacular architecture on building energy efficiency. Accordingly some properties are very significant in a positive manner, while others affect negatively, or do not have any influence on the energy demand by heating and cooling. Thus, the idea of “vernacular buildings and their design principles are always sustainable” alleged by the studies in the literature is not correct in every case.

The Alaçatı Energy-Efficient Architecture Database Schema, as the outcome of the results of the present study, indicates suggestions to be implemented on the new accommodation building designs in Alaçatı, in order to achieve energy efficiency. The given instructions of this schema are anticipated to contribute to the architects that practice in the traditional urban texture of Alaçatı.

The evaluation method of the study is a potential template for future research in the other tourism centers with vernacular architecture specialties. In terms of sustaining the vernacular features and energy efficiency in the tourism centers, the present study highlights an exemplary endeavor.

CONCLUSIONS AND RECOMMENDATIONS

The study focuses on the energy efficiency characteristics of accommodation buildings in Alaçatı. Concerning that, the buildings were evaluated in three groups, which are “Accommodation buildings converted from vernacular houses of the area”, “New accommodation buildings designed in the style of vernacular houses”, “Accommodation buildings with different architectural styles”. Three accommodation buildings with different orientations, locations, and form specialties for each group were determined as the nine sample buildings of the study. The case buildings were evaluated regarding the checklist that contains the criteria of building form, shading strategy, natural ventilation, the density of space, building materials, and roof style.

The effects of the energy-efficient architecture criteria on annual heating and cooling demand were attained by building energy modeling. The results of the energy demand effects were presented comparatively between and within the case building groups. According to the evaluation “Alaçatı Energy-Efficient Architecture Database Schema” was

constituted for the new buildings to be designed in the area by listing the most suitable properties.

The method of the current study gives the possibility to measure the effects of the characteristics of vernacular architecture. Unlike the other studies in the literature that introduce energy-efficient architecture features of vernacular buildings, the current study evaluated the effects of the components' portions on total annual heating and cooling load (Anna-Maria, 2009; Dili et al., 2010; Fernandes & Mateus, 2012; Manzano-Agugliaro et al., 2015). In contrast with other studies, the present study showed that some features of vernacular architecture, such as vernacular building materials and bay windows, are not energy-efficient. However, it was observed that roof style, the density of space, natural ventilation, and shading strategy principles of vernacular buildings decrease heating and cooling load effectively (Alzoubi & Almalkawi, 2019; Bencheikh & Bederina, 2020; Gou et al., 2015; Meiting & Linxue, 2019; Michael et al., 2017; Mohammadi et al., 2017).

Tourism of Alaçatı keeps growing by diversifying. Consequently each year the population of visitors increases. In this context, it is inevitable that both in Alaçatı and its developing areas more accommodation buildings will be constructed. The suggestions of the "Alaçatı Energy-Efficient Architecture Database Schema" will provide both the continuity of the vernacular specialties and reduction of the energy demand in a passive manner. Thus, the authenticity of the Alaçatı vernacular architecture will be visually sustained, while the energy-efficient and climate-responsive specialties of the all groups of the buildings are employed.

The results of the study are expected to guide the new studies that focus on the tourism of Alaçatı and its continuity. Moreover, it is envisaged that the study can provide data and a model for further studies related to accommodation buildings in different tourism centers. Determination and comparison of the energy-efficient architecture decisions in Alaçatı and other tourism centers that have different climate conditions are of significance for further studies.

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CONFLICT OF INTEREST

There is no conflict of interest.

FINANCIAL DISCLOSURE

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ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey.

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Resume

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Social Creativity and Place (Re)production: Tarbiat Pedestrian Route in Tabriz, Iran

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Abstract

Purpose

This article explores the role of creativity and its aspects in urban environments by tackling the issue of place (re)production based on a particular interpretation of creativity as an “everyday” and “social” phenomenon. The paper gives theoretical evidence for the relationship between place (re)production and social aspects of creativity.

Design/Methodology/Approach

The study benefited from a review on both subjects of social creativity and place (re)production to find out their relationship and how they can be expressed in an urban space design process. Tarbiat pedestrian route in Tabriz, Iran was chosen as a case study. Based on the proposed conceptual model, a thematic content analysis was carried out on the qualitative data collected in 2019 from the Tarbiat pedestrian route using Atlas.ti.06 software with regard to the dimensions of creative (re)production of place.

Findings

The main achievement of this article is development of an original conceptual framework for applying 1) social creativity as an effective factor in (re)production of place, and 2) the findings in a practical context.

Research Limitations/Implications

The main limitations of this research include the time constraints of accomplishing a qualitative research, the limited number of previous studies on the topic and the lack of samples qualifying as a case study.

Social/Practical Implications

This article is based on the concept of creativity as a social phenomenon that involves ordinary, unplanned, and collective creative acts of individuals, as well as urban place formation as a socio-spatial process, in which social context plays an important role. Also, according to the results, incentives of social creativity in the (re)production of the place are closely associated with the active role of the users and their enthusiasm to participate in design processes.

Originality/Value

This research focuses on an urban regeneration initiative to show how an appropriate context for mobilizing actors, bringing them together and shaping a more creative urban space is achieved by conscious level of place (re)production through inspired and gradual expert-oriented interventions, and the unconscious level of (re)production through the everyday shared experiences of people.

Keywords: Social creativity, urban design, conscious, unconscious, (re)production of place

INTRODUCTION

The subject of the built environment and its relations to the creativity has been discussed in different academic fields, e.g. environmental psychology (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Hemlin, Allwood & Martin, 2004), sociology (Barlow, 2000; Burns, Corte, & Machado des Johansson, 2015), and urban studies (Drake, 2003; Florida, 2002; Landry, 2012). Scholars have introduced cities as a suitable context for creativity (Florida & Tinagli, 2004; Howkins, 2001) and “places” as the integral part of creative strategies, as expressed in the ideas of creative industries (Hartley, 2005; Howkins, 2001), the creative economy (Florida, 2002; Florida & Tinagli, 2004) and the creative city (Drake, 2003; Landry, 2012). The success and development of cities depend on organization of the common creativity by urban authorities (Florida, 2002). The claim that creativity is the result of the social interaction among people is not a new claim, but different aspects of the connections between creativity and the production of the built environments in the context of urban design have not been studied to an acceptable degree thus far. Most of what is promoted in design is arguably the individual creativity of designers or a group of elites (Akin, 1978; Gero, 1990; Lawson, 2005), which leads to adapting exclusive approaches to the subject of creativity.

Bourdieu (1993) considers the place of artwork in the social conditions that produce them, and Putnam (1993) draws attention to the “social capital” and the importance of relationships between individuals and their impact on realizing creative potential. Thus, groups and communities, as well as individuals, can produce creative products (Barlow, 2000; Kasl, Marsick, & Dechant, 1997; Watson, 2007). Likewise, social institutions have features and environments that encourage creative behaviors (Robinson & Stern, 1997).

Much human creativity arises from activities that take place in a social context in which interaction with other people embodies the group knowledge. Creativity does not happen inside a person’s head, but in the interaction between a person's thoughts and the socio-cultural context (Csikszentmihalyi, 1996). Scott (2006) and Ho (2009) believe that the relationship between the place and the creative production requires understanding the situated design processes associated with the specific production.

This study identifies a gap by reviewing the literature on the understanding of creativity as a social phenomenon and the process of place production in design. To fill this gap, a theoretical study and an experimental survey were needed to answer the questions missing in the literature on place and creativity and expand understanding of the place production process and how social creativity contributes to it.

In order to measure the experimental model of creative place reproduction in the urban environment, the regeneration of Tarbiat pedestrian route located in District 8 of Tabriz city, Iran was selected.

The main reasons for choosing the regeneration project of Tarbiat pedestrian route are briefly listed below:

- The Tarbiat regeneration project is a significant example of design-oriented urban projects implemented recently in Iran based on placemaking goals and gradual process.
- The historical, social, and cultural features of Tarbiat as a vibrant public place with multiple uses and activities in various scales that strengthen urban life are necessary for the research analysis.

The qualitative methodology of the research is based on conducted in-depth interviews and thematic content analysis through Atlas.ti.06 drawing on the common characteristic of “everyday creativity,” as well as the role of collective efforts in the processes of place (re)production.

LITERATURE REVIEW

Social and Everyday Creativity

Creativity is one of the main concepts in art and related fields, as well as psychology and sociology. It is defined as the use of mental abilities to create or develop new thoughts or concepts (e.g. Amabile, et al., 1996; Sternberg & Lubart, 1999; Torrance, 1981). Certain aspects of creative production depend on ideas about a single creator (Negus & Pickering, 2000). Creativity is influenced by the context and is embedded in and specific to people’s everyday lives (Negus, 1998; Glaveanu, 2010, Tang, 2019). Individualized creativity is currently under-explored in the literature of cultural and creative industries focusing mainly on the spatiality of creative businesses and collective creativity associated with an entrepreneurial context (e.g. Vallance 2014; Gong and Hassink 2016; Tang, 2019).

Creativity is not limited to personal aspects, and those who focus on its social dimension create a serious challenge to the credibility of traditional boundaries of the “individual creativity” concept (John-Steiner 2000; Watson, 2007). Social creativity is defined as the everyday, ordinary, unplanned, and collective creative acts of people, and involves the concepts that have already been mentioned. Purser and Montuori (1999) use the term “sustained creativity” to describe creativity that occurs through normal activities. They believe that maintaining and sustaining the everyday creativity leads to promotion of existing environments. Richards (2007) defines “Everyday creativity” as one of the key concepts that includes the average, small activities instead of concentrating on ideas that make fundamental changes or bring about great innovations.

According to Fischer (1995), “Much human creativity is social, arising from activities that take place in a social context in which interaction with other people and collective knowledge are essential contributors.” He believes that the emergence of social creativity requires the incentives of the actors to become active colleagues, to bring their knowledge into discourse, and to develop ideas in partnership with other people involved in the process (Fischer, 1995). The incentives to

express ideas through participation and exchanging experiences is the necessary condition of social creativity (Sonnenburg, 2004; Burns et al., 2015). Participation occurs when the issue is individually and socially meaningful for the involved actors and requires a supporting tradition and paradigm that can provide the basis of creativity (Sannino & Ellis, 2014). The system of beliefs and values called “the culture of participation” (Fischer & Shipman, 2011) allows for prosperity of creativity, while admission of the historical context (Ville, 2011), the sociocultural (Fischer & Shipman, 2011; Watson, 2007), and political (Burns, et al., 2015) structures create a context in which creative experiences take place. The interactions between people and the expression of ideas result in shared experiences.

Social creativity is a communicative process influenced by conscious and unconscious actions of individuals. The governing paradigms and beliefs of the community provide an idealized situation for consideration of different ideas and the engagement of actors in creative experiences. Innovative experiences occur in the participatory platforms where the basis is provided for the sociocultural involvement of people. Fig. 1 shows how social creativity is generated from contextual factors and mutually related to social experiences both through conscious and unconscious actions.

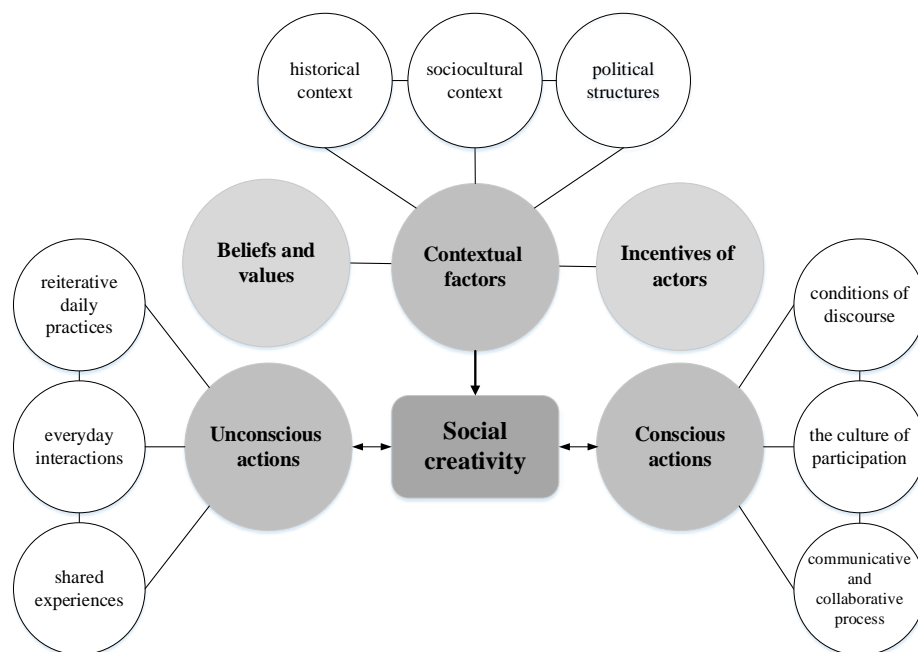


Figure 1. The relationship between factors effective on social creativity

Social Creativity as a Means of Place (Re)production

Social Creativity as an outcome of the interactions between people and their surrounding environment is mentioned in different studies (Richards, 2007, Runco, 2007; Salomon, 1993; Watson, 2007). The physical environment and its characteristics are important in fostering the individual and collective creativity (Drake, 2003; Perry-Smith & Shalley, 2003). John-Steiner (2000) believes that public spaces and their

forms are results of common thinking, shared interests, and collaborative efforts in meaningful relationships, but little is known about how urban places, in which different actors (such as designers, residents and arts performers) work and/or live, matter in creative work. Ho (2009) and Drake (2003) believe it is not clear to what extent these places can act as catalysts for individualized and socialized creativity.

Design activism (Fischer, 2005; Thorpe, 2008) based on the active role of people provides a basis for creative experiences (Marchart, 1998). Promoting social creativity in urban design is embedded in activism, which involves motivating actions, mobilizing stakeholders involved in the project, and creating a competitive environment (Markusen, 2011). Adopting social creativity in urban design changes the approach from “designing ‘for’ the community” to “designing ‘with’ the community” and eventually creates opportunities for communities to “design ‘by’ themselves” (Meroni et al., 2013). Design by people, or so-called DIY (do it yourself) urban design (Douglas, 2014), emphasizes the unauthorized alterations made in urban spaces and considers them as a symbol of collective creativity.

Place (re)production also refers to a collaborative process by which the public realm is shaped according to shared values. Placemaking occurs through repetition of everyday activities in space, sharing everyday experiences and cultural practices. Drawing on urban creative placemaking research (Drake, 2003; Lloyd, 2006; Ho, 2009; Rantisi and Leslie, 2010; Tang, 2019), it is important to highlight social creativity and the manner in which it constitutes a part of place production.

Designers accomplish expert-oriented (re)production of places through planned processes (Fig. 2), which are categorized into several processes including design, development, consumption, and management (Carmona, 2015). Lefebvre (1991) refers to “enabling citizens to participate in the production of place” as a way of socializing and expressing creativity. He defends citizens’ right to participate - the right to access and influence the decisions and processes that generate space - and citizens’ right to appropriation - the right to access, occupy and use space - as well as the right to create new space that responds to their emotions, dreams, and needs.

Applying social creativity in urban design requires a discourse-based process to create a framework for the participation and collaboration of involved actors. Conscious (re)production of place in urban design is a process that takes place through corresponding processes of design, management, and development. Furthermore, unconscious actions of people in their everyday lives create reiterative social practices that shape the interactions among individuals and lead to shared experiences. Thus, (re)production of places is also a routine and daily process, which takes place through daily practices, everyday interactions, sharing experiences, and communicating.

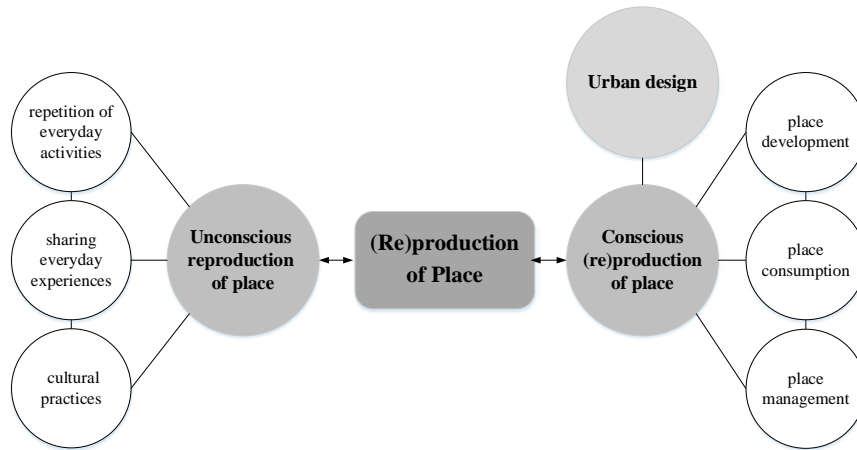


Figure 2. The conscious and unconscious factors in (re)production of place

The following conceptual map indicates the relationship between the criteria of social creativity with the criteria of place (re)production (Fig. 3). The effective criteria of the (re)production of place is divided into three main domains of "contextual factors", "conscious (re)production", and "unconscious (re)production". The mechanism of creative (re)production of place in urban design has both conscious and unconscious aspects. The conscious level can provide the basis for the unconscious (re)production of place. These levels will be addressed in Tarbiat pedestrian route using qualitative techniques.

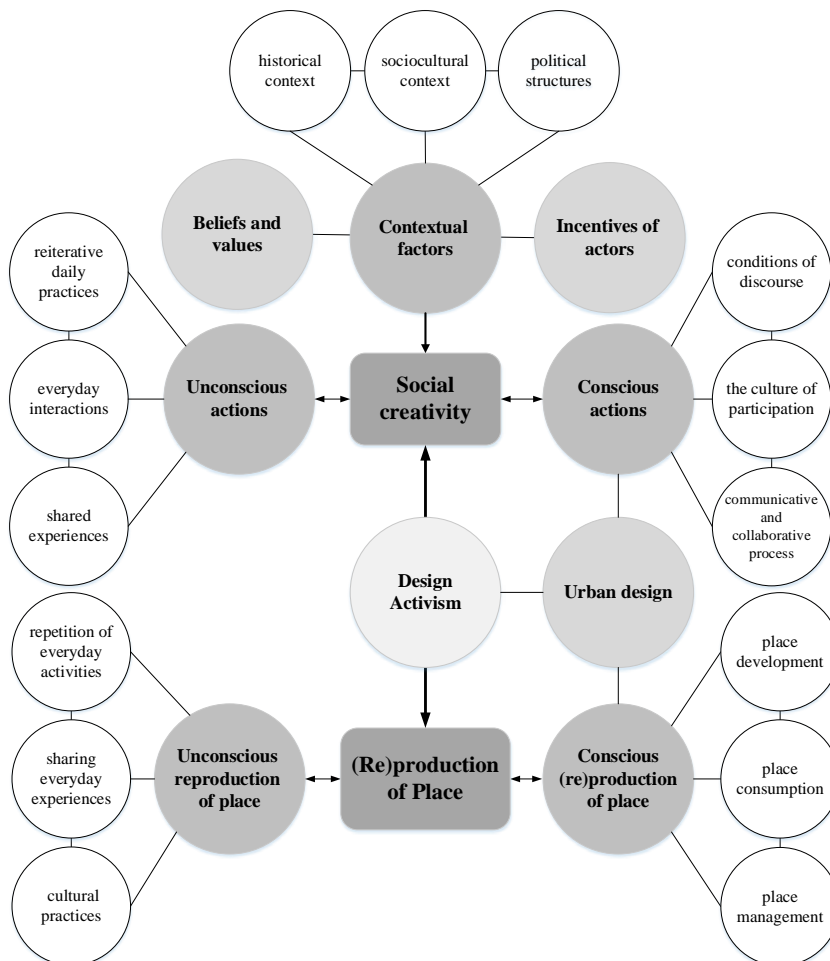


Figure 3. Developed relationship between the criteria of social creativity and the (re)production of place in urban design

THE CASE STUDY: TARBIAT PEDESTRIAN ROUTE

Tabriz, with a population of 1,611,000 in 2020 and an area of 237.45 km², is the third largest city in the country after Tehran and Mashhad. It is the capital of East Azerbaijan province and was historically selected as the capital of Iran in Safavid dynasty (1500 AH).

The case under study, Tarbiat pedestrian route, is located in the 8th district of Tabriz municipality and links the central core of the city through Imam Khomeini Street (Main Street) to the Tabriz Bazaar. This street is one of the most important commercial, cultural, and historical centers of Tabriz. Valuable buildings and facilities such as the Tabriz Ark, historical Mosque of Ostad -Shagerd, Tabriz Municipality and Time Square (Maidan-e Saat) are in or relatively close to this street.



Figure 4. The location of the historical centre of Tabriz (the 8th district of Tabriz municipality)



Figure 5. The location of Tarbiat pedestrian route in city centre of Tabriz

The initial interventions in Tarbiat Street were undertaken in 1993, through which the eastern part of the street turned into a pedestrian route with commercial and recreational functions, but it lost its spatial quality over two decades, and several problems appeared in this area. Therefore, in 2011, “organization and improvement of the Tarbiat pedestrian route” project was established by the “Renovation Centre of

Tabriz Municipality “. Regeneration of the Tarbiat pedestrian route in Tabriz has been implemented in recent years and acclaimed by authorities as a creative attempt for (re)production of place (Abbaszadeh & Tamari, 2013; Kalantari, SoltanMoahamadlou & SoltanMoahamadlou, 2017).

Historical context: The route was formed between 1929 and 1932 to facilitate the accessibility between the Nobar and Digbashi historic gates and was named Tarbiat after the name of the mayor at the time, “Muhammad Ali Tarbiat.” The impact of the historical constancy on the development of Tarbiat pedestrian route is very significant. The intrinsic features of Tarbiat Street as a place for pedestrian activities are formed and evolved gradually over a 200-years period, from the Qajar dynasty on. The passage was expanded during the second Pahlavi period (1925-1979) due to the high level of pedestrian activity and changed to an important urban space in the historical context of Tabriz city (Esmaili Sangari, 2014; Zamani, 2008). In addition, the historical features of Tarbiat Street as part of the Silk Road and its location in the central part of Tabriz created a strong historical image for it.

Functional aspects: Tarbiat is a multi-functional commercial pedestrian street. The strategic location of the street in the central core of city, and its spatial and functional connections with the Tabriz Bazaar have helped in forming a commercial network. The following land use map from the Tabriz detailed plan shows that commercial activities are concentrated in the street and penetrate to the surrounding area. The multi-scale mixed land uses strengthens the economic role of the pedestrian street.

Physical context: Tarbiat is a relatively narrow street with old-style facades and special architectural pattern. The proper proportions and spatial enclosure are the distinguishing and identifying characteristics of Tarbiat Street. Regeneration of the old entrance makes a remarkable local symbol and identifies the physical limits of the place.



Figures 6. Old-style facades and the special architectural pattern (left)

Figure 7. The entrance of Tarbiat pedestrian route, which is the regeneration of historical Nobar Gate (right)

Social characteristics of Tarbiat: The local society is interested in Tarbiat as it provides the necessary facilities and amenities for individuals. Vicinity to the Tabriz Bazaar and the function of Tarbiat as an active pedestrian route invites different groups of people, specifically

the residents of adjacent and remote neighborhoods and creates social interactions.

Perceptual aspects: The perception of pedestrian in Tarbiat pedestrian route depends on their personal characteristics, walking times and visiting purposes. The physical settings like artworks and street lighting are the main contributors to enhancing the perception of users on Tarbiat followed by the vitality of street formed by various business types, outdoor performers, and other pedestrian activities. Also, preserving the historical identity during the revitalization project has influenced the perception of the pedestrians, especially constant users. Most regular pedestrians prefer to walk throughout Tarbiat path for its historical values and functional aspects which has distinctive meanings for users.

Figures 8 & 9. The lighting and artworks are considered as creative elements and a part of the place identity (e.g. the stone benches engraved with the design of historical Qari Bridge)



THE METHOD

Qualitative research was performed from May to September 2019. Twenty-nine in-depth interviews were conducted with people involved in different levels of the planning and development of the place. Interviewee selection was accomplished through purposeful snowball sampling based on the common characteristics of the involved people at different stages of the project who played an effective role in the place (re)production process.

The interviews were unstructured and informal, and the interviewees could talk in depth about the Tarbiat pedestrian route including the history, the existing situation, the activities and interventions in the place, and the overall process of changes through time. The interviewees were non-randomly selected by snowball sampling method based on their participation in the planning phases of the project. Designers provided registered information regarding participants. Selected participants were concerned about the project, actively participated in workshops, tried to make their voices heard and influenced the design processes. The participatory workshops solved the conflicts between actors and resulted in creative solutions for some problems through guidance of designers. The information about the composition of interviewees including the resident/user, gender and age of the interviewees was balanced to maximize diversity (Table 1).

Table 1. The attributes of the interviewees

Participants	Gender
Resident (21 persons)	Female (6), Male (7)
Constant User (5 persons)	Female (4), Male (3)
Temporary User (3 persons)	Female (2), Male (7)

The methodology was based on thematic Content Analysis (TCA) using Computer-Aided Qualitative Data Analysis Software (CAQDAS) Atlas.ti. 06. ATLAS.ti is acknowledged as an essential tool that facilitates researchers' ability to undertake well-organized, systematic, effective and efficient data analysis in many studies (e. g. Lu & Shulman, 2008; Friese, 2011; Rambaree & Faxelid, 2013). The software renders qualitative data more visual, is portable, and facilitates the processes of segmenting, categorizing, annotating, retrieving, and searching within and across documents and categories. Based on the process of data analysis in Atlas.ti, six steps were distinguished as follows:

- Creating hermeneutic units (HU),
- Assigning primary documents,
- Discovering relevant contents,
- Creating codes and memos,
- Building theory by interlacing contents to networks, and
- Writing the results.

The Content Analysis of Interviews

Application of the used software consisted of coding documents, extracting key concepts, and constructing sub-themes and themes. Table 1 summarizes the results of the interviewees' viewpoints on the contextual factors. Based on the analysis, the contextual factors are categorized as follows: 1) context of place, 2) the role of actors, 3) political forces and power relations, 4) traditions and paradigms, and 5) incentives.

The interviewees believed that the designers of Tarbiat project had a conservative viewpoint about the values of Tarbiat pedestrian route, and thus the plan was in accordance with the status quo. Also, interventions of designers in the place were accompanied by the everyday lives of residents. The interviewees believe that the changes responded to their needs and solved the essential problems of the place. The findings revealed that the ruling paradigms and beliefs based on the implementable, enforceable, and gradual interventions according to the existing conditions attract different groups of people to the place and can lead to social creativity. Incentives of social creativity in the (re)production of place are closely associated with the power and influence of the people to express their opinions and play an active role in the process. The urban designers had an effective influence on the (re)production of place in Tarbiat by involving different stakeholders, explaining the benefits of the plan, and stimulating people's motivation.

Understanding the benefits of changes created incentives for community participation in the process of transforming Tarbiat Street to a pedestrian route. The concerned and committed approach of designers throughout the negotiations reduced the power of urban administration over the place and activated people to play their role in the process. This attitude created trust among local actors mobilized them and generated a platform for sustainable daily experiences.

Table 2. Summary of Interviewees' views on theme “Contextual factors”

Main Codes	Key Concepts	Sub-themes
Historical and strategic location, historical buildings belonging to Qajar period, founded by Mohammad Ali Tarbiat	Historical context	Context of place
Functional connections with Tabriz bazaar, variety of functions, diverse boutiques and shopping centers	Functional and economical context	
Physical enclosure, desirable proportions, specific entering gates, valuable façades	Physical and spatial context	
Diversity of social groups	Social features of users	The role of actors
The active role of urban designers in the project, the effective role of the Cultural Heritage Organization in preserving the values of place during transformation	The active role of the urban designer	
Values based on the revitalization of a historical place	Common values among actors	
Feeling responsibility to place, trust of people in designers	The active role of the residents	
Effective role of the NGOs in conserving the historical context, the active role of the public institutions	The power and influence of NGOs and public institutions	Political forces and power relations
Adaptation of the plan to the status quo, feasible and enforceable interventions	Beliefs about the plan	Traditions and paradigms
Gradual and step-by-step actions, taking advantage of past experiences, taking advantage of global experiences	Patterns of intervention	
Application of rules for protection of historical buildings, protecting identical elements, designing new identical elements	Conservation of traditional and historical identity	
Economic benefits of interventions to people, overcoming the fear of loss	Explaining the benefits of plan and motivating people by designers	Incentive
Changing decorations, improving the interior space of shops, changing the facades	Understanding the benefits of changes by people	

Based on the content analysis of the interviews, the main criteria explaining social creativity in the design process of the Tarbiat project are 1) context-oriented approach, 2) regenerative actions, 3) identity-oriented approach, 4) innovation, 5) beautification, and 6) creating

meaning. Table 2 summarizes the interviewees' perspectives on the concept of "social creativity."

Table 3. Summary of Interviewees' points on "Social creativity"

Main Codes	Key Concepts
Considering the historical and cultural context, considering the daily lives of residents, considering the needs and desires of different groups of users	Context-oriented approach
Regenerating the past values, e.g., the historical gates and traditional activities, representing memories	Regenerative actions
Renovation of buildings, using identical elements, conservation of historical buildings	Identity building
Making difference through design, shared Initiatives, converting constraints to opportunities	Innovation
Using public art, improving urban furniture, improving environmental quality	Beautification
Providing meaningful elements in the place	Creating meaning

The context-oriented and regenerative actions of designers positively impacted residents and increased the potential for everyday creative activities and collaborative bottom-up actions, e.g., restoring and lighting building facades, changing decorations, and improving the interior spaces of shops. Furthermore, the quality of place was improved through meaningful elements, e.g., equipping the place to the furniture and installing sculptures of traditional Tabriz businesses.

The formal and conscious place (re)production involves professional actions that enact changes in the place through a set of interventions in the physical, functional, and socio-cultural contexts. The effective phases of the conscious (re)production of the Tarbiat pedestrian route include 1) preparing the plan; 2) resolving conflicts between actors, creating conditions of discourse, and building consensus; 3) inviting the participation of actors; 4) implementing the plan; and 5) managing and developing the place. Table 3 summarizes the interviewees' viewpoints on the "conscious (re)production of place."

The active role of Tarbiat pedestrian route designers resolved conflicts, facilitated interaction among stakeholders, and attracted public participation, thereby providing the primary steps for resident participation and the opportunity for people to express their ideas and inspirations about the plan. Informing the residents before implementation of the plan and paying attention to their opinions indicates the responsibility of administrative authorities. The continuity of the conscious actions in maintaining the place led to building trust among the users and created a sense of responsibility in people. Face-to-face meetings with people and making all voices heard significantly impacted public participation in expressing their ideas and led to a constructive relationship among the stakeholders.

Table 4. Summary of Interviewees' points on "Conscious (re)production of place"

Main Codes	Key Concepts	Sub-themes
Interest and attention of the designers to the place	Formation of the incentives	Preparing the plan
Assessment of needs, feasibility of the plan	Recognition of the place	
Integrity of place with its periphery, preserving historical identity, preparing walking facilities	Defining the design goals, ideas, and solutions	
Superiority of the collective benefits over individual benefits, resolving the conflicts between residents and urban authorities	Resolving conflicts between actors	Resolving conflicts and consensus building among actors
Negotiation with the Cultural Heritage Organization to take part in the plan, inter-organizational cooperation	Consensus building	
Informing residents through formal announcements and letters, paying attention to the residents' opinions	Informing residents and building trust	Inviting the participation of actors
Public hearings, considering ideas of residents	Participation of actors in expressing their ideas	
Face-to-face meetings with administrators, establishing positive and relationships among stakeholders	Interactive and collaborative approach	
Gradual changes, improving the infrastructure	The intensity of physical interventions	Implementing the plan
Maintaining pedestrian movement in the area, developing and enhancing different functions	Sustained development efforts	Managing and developing the place
Economic prosperity increases visitors	Economic prosperity	
Creating a flexible space	The flexibility of changes	
Management of place, monitoring changes	Sustained management and maintenance	

A process of informal, bottom-up, and unconscious (re)production of place is also identifiable in the Tarbiat project. Table 4 summarizes the interviewees' viewpoints about the unconscious (re)production of place, which is prepared in the form of the key concepts achieved from the codes and the attained sub-themes and themes. The main stages of unconscious (re)production of place are 1) being accustomed to the place, 2) ongoing places consumption, and 3) establishing a stable relationship with the place.

The process of unconscious (re)production of place begins with familiarity with the place and its recognition through daily practices. For interviewees, the Tarbiat pedestrian route is a unique and memorable place regarded as a destination rather than a passage. The interviewees believe that professional interventions have boosted the social life of Tarbiat pedestrian route, provided a suitable condition for communicative and recreational activities, and changed it to a dynamic and vibrant place. Diverse activities, functions, and events attract different groups of people to the place, thus creating vitality.

Table 5. Summary of Interviewees' points on "Unconscious (re)production of place

Main Codes	Key Concepts	Sub-themes
Historical continuity of changes in the minds of people	Place continuity	Being accustomed to the place
Social interactions, vitality, the order in the layout of buildings, harmony of the facades, proximity to the Bazaar, attractiveness and functionality	Specific features of place	
Individual and collective memories	Collective memories	
Long-time residency, neighbourhood relationships, shopping, sitting, meeting friends, wandering around, having fun, relaxing	Repetitive everyday activities	Ongoing consumption of place
Renovation of building frontages, renovation of shops	Changing space by users	
Living around the place, unwillingness to leave the place, returning to the place	Sense of belonging to the place	Establishing a stable relationship with the place
Emotional, cognitive, and functional attachment to the place	Attachment to the place	

RESULTS

Tarbiat pedestrian route is simultaneously the product of gradual changes of place by people over time and interventions of designers. The gradual and step-by-step interventions in place aligned with bottom-up and unconscious actions of people lead to (re)production of place. Design, development, and management processes provide the basis for unconscious (re)production of place and the repeated everyday interactions and shared experiences. The emerging ordinary and sustainable creativities of people improve space into a living place. Therefore, the two levels of creative (re)production of place in the Tarbiat pedestrian route are identified as follows:

Level 1: Conscious (re)production of place

Preparing the plan: The plan of Tarbiat pedestrian route is based on the exact recognition of the status quo and the needs of residents, and thus provides a dynamic and vibrant context for people. Accurate recognition, executive viewpoint, and feasibility of the plan are influential to the formation of creative activities.

Resolving conflicts and consensus building among actors: The active role of urban designers in resolving conflicts and consensus building among stakeholders to achieve an agreement through a gradual process provides the basis of collaboration and interaction between participants, which is influential in proceeding the goals of conscious (re)production of place.

Involving the participation of actors: Participation of people in Tarbiat pedestrian route requires community-based socialization: trust building;

mobilizing residents in expressing their ideas, desires, and opinions; and adopting a collaborative process. The formation of a Board of Trustees in Tarbiat project provides the basis for community participation and increases people's interest to express their ideas about the plan and make their voices heard, thus leading to spontaneous collective efforts that provide the stepping stone for social creativity in the (re)production of place.

Implementation of the plan: The gradual and step-by-step interventions that do not make fundamental changes in the everyday lives of people helps them accept the plan as part of the usual transformation of the place. The improvement and revitalization activities carried out alongside the infrastructural development of the place has a slow step-by-step procedure and thus becomes an integral part of the (re)production process.

Development of the place: Sustained development efforts in Tarbiat pedestrian route reinforces the economic prosperity of the area and thus, promotes the social life of people. Residents benefit economically from the developments, which happen in Tarbiat route and thus are motivated for more collective activities regarding changing the route.

Management and maintenance of the place: Maintaining security and continuously managing the development process are the key solutions for encouraging the presence of people. Although the safety of the place is not in a desirable condition, the activities of urban administration in managing Tarbiat pedestrian route affects the promotion of economic and social prosperity of the place, provides dynamic public space, and enhances vitality and social creativity in the area, which contributes to the (re)production of place.

Level 2: Unconscious (re)production of place

Being accustomed to the place: The process of unconscious (re)production of place in Tarbiat pedestrian route begins with place recognition during everyday life. Engaging the present residents and sustaining the history of changes in the minds of people provides the opportunity to create personal and collective memories and reproduce place through time. Formation of memories creates a sense of belonging and influences the (re)production of place in the minds of people.

Consumption of place: Tarbiat pedestrian route is continuously used through repetitive everyday experiences of users. This enhances social meanings, causes transformation of the place during everyday life, and affects the unconscious (re)production of place.

Establishing a stable relationship with place: A strong and stable relationship is established between the users and Tarbiat pedestrian route through recognition and everyday consumption of place. The relationship of people with Tarbiat pedestrian route leads to a sense of belonging and attachment to the place, which makes it distinct from other places. Table 5 displays the results regarding the levels and stages of "(re)production of place."

Table 6. Experimental results of research about levels and stages of “(re)production of place”

Main Levels of (re)production of place		Creative (re)production of place in the Tarbiat pedestrian route
Level 1. Conscious (re)production of place	Preparing the plan	The economic and social incentives, based on deep recognition of place, adaptation of the plan to the context
	Resolving conflicts between actors, creating conditions of discourse, and building consensus	Negotiation and consensus among stakeholders
	Involving the participation of actors	Active role of designers and participation of people through board of trustees
	Implementation of the plan	Gradual and long-term interventions
	Development of place	Sustained development efforts
	Management of place	Sustained maintenance and management of place
Level 2. Unconscious (re)production of place	Being accustomed to the place	Familiarity and continuity of the mental image and memories of the place
	Consumption of place	Everyday life and the occurrence of iterative everyday activities
	Establishing a stable relationship with place	Deep emotional relationship between people and place

The creative (re)production of place is a process in which all actors play roles. (Re)production of place is carried out by people through the guidance of active urban designers, along with the other public and private actors and urban administration. Creative (re)production of place is a gradual and long-term process requiring continuity of the professional activities. The gradual speed of interventions reproduces the place according to people’s existing situations and lives. The urban design process in (re)production of place is a participatory and collaborative process based on the deep recognition of the status quo that provides strategies consistent with the context. The continuous development of place accompanied by its management and maintenance help people reconcile their lives with the pace of change. Place identity is preserved, and people are well acquainted with the (re)production process. Mental images and memories of the place are constant in the minds of users. Daily routines and repetitive experiences create place attachment and reinforce the emotional relationships between people and the place.

The results of the experimental research of Tarbiat pedestrian route shows that context is an important dimension of place flagged up during the fieldwork. Users considered place characteristics as fostering their creative practices. Moreover, a positive relationship between collaborative creative works and design activities were distinguished.

This is an empirical evidence supporting the theorizing of Markusen (2011) that the potential of creative production is shaped by physical elements including historical, socio-cultural and political context. While public participation was not an object of analysis in this research, the

empirical data shows that the role of live-work arrangements has positive impacts on social interactions with the local community. There are also important place-specific elements implicated in the creative reproduction processes.

The preceding research of Markusen and Gadwa (2010) under the title of creative placemaking and the creative city theories raised by Florida (2002) and Landry (2012) focus on the practice of individual creativity to create high-quality places. In the case of Tarbiat route, the ongoing and flexible urban regeneration program together with community-building motives led to consistent improvement by professional designers and artists, and establishment of a platform for building creative ideas in the form of art works, events and physical and functional changes. Tarbiat is therefore a case to extend our understanding of how creativity can impact place production. Tang (2019) emphasizes the role of context in social creativity and the fact that that social innovation can be a form of self-reliance needed for placemaking.

CONCLUSIONS AND RECOMMENDATIONS

Interdisciplinary analyses have identified the context of a place as a critical factor in developing creativity, but little attention has been paid to application of the concept of social creativity in the placemaking process. This study argues that social creativity is one of the effective factors in reproducing place in the urban design process. The research proposes a deeper concept of creativity in urban design that goes beyond individualistic and elitist views and is further inspired by sociological approaches like Gerhard Fischer's (1995, 2004, 2005, 2011, 2015) and Teresa Amabile (1995, 1996) studies on social creativity and its application in design fields.

The process of (re)production of place in Tarbiat pedestrian route represents an interaction between the conscious level of (re)production of place through urban design and the unconscious level of (re)production through the everyday shared experiences of people. Gradual expert-oriented interventions based on the potential of Tarbiat pedestrian route create an appropriate context for mobilizing actors and bringing them together. The conscious interventions are effective in improving social creativity and unconsciously (re)produce the place through the formation of bottom-up everyday interactions and creative experiences.

A few interviewees indicated that locality stimulates and manifests the expressions of creativity through its visual environment. The place-based socio-cultural networks and activities contribute to their creative work and inspiration. While this echoes Drake's (2003) theory on the relationship between place-based elements and socialized creativity, the data suggests that the design approach to the management of creative production of places plays a crucial role in shaping the milieu and orientation of those places, and the many ways in which people express

their creative work. These findings also indicate that designers can influence the viability of particular types of artistic production within its place as actors. In the case of Tarbiat pedestrian route, the design practices manifest a tendency toward the promotion of conscious activities, economic viability, and bureaucratic principles, rather than facilitating creative processes and growing contemporary art. The design policy promotes civic values through enforcing artwork inspired by designers and managers experience in living and interacting with the local residents, and by their contacts with place-based visual materials. This allows creative residents to create artworks with strong place-specific elements.

Unconscious actions are important as a starting base, as with the place-based social networks and the live-work arrangements. Equally important, is the design approach to regeneration practices that affects the manner in which users relate their own production and identity to the locality as a production place. While this research mainly studies social creativity in various aspects, it does not focus on sub-sectors of the creative industries. How do different creative workers respond to a place? How are their work processes and individual creativity tied to dissimilar configurations of place? Further research would be useful to investigate these questions, especially as we know some of our understanding of creative production is closely linked to the knowledge of the design processes and the elements of place. Identifying these characteristics enables scholars and officials to learn the factors that influence the approach through which arts and cultural production base are developed.

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CONFLICT OF INTERESTS

No conflict of interest was declared by the authors.

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LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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Resume

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Shaping of Flexibility in Urban Renewal Legal Sources in Turkey and Its Effect on Practices

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Abstract

Purpose

Discussions in planning systems of different countries under the influence of structural changes at the macro level are concentrated around flexibility and certainty. Since 2000, Turkey have triggered a shift in the planning system which is defined as regulatory in theory, towards a more flexible system in practice. This flexible system can be also seen in urban renewal practices. The aim of the article is to discuss the flexibility shaped by the legal sources with examples of urban renewal in Turkey.

Design/Methodology/Approach

As methodology, in the study, firstly, international and national literature on flexibility in planning systems was investigated. Afterwards, shaping flexibility in planning systems is focused on three categories; (1) spatial planning, (2) property rights, and (3) discretionary power. Legal sources related to urban renewal areas, and their practices are examined under three categories based on findings of some examples in literature.

Findings

The findings demonstrate that the increase in the degree of flexibility directly affects the spatial planning, property rights, and using of the discretionary power: Firstly, the scope and power of spatial plans are eliminated. Secondly, the property right, which is protected by the constitution, is ignored. Thirdly, since the limits of discretionary power are not clear, the outcomes of practices cannot be controlled either.

Research Limitations/Implications

The study based on findings of some examples in literature. In the study, no specific area study has been conducted.

Social/Practical Implications

As a result of these study, laws and regulations related to urban renewal can be rearranged in terms of property rights, discretion power and spatial planning. Thus, more livable cities can be created with the participation of people in urban renewal practices and the public benefit of planning.

Originality/Value

There are quite limited studies focus on shaping of flexibility, and its effects in urban renewal. The originality of this study is to examine the shaping of flexibility in legal sources related to urban renewal, and reflections into the practices.

Keywords: *Flexibility, regulatory planning, legal sources, urban renewal practices, Turkey*

INTRODUCTION

Under the influence of structural changes at the macro level, discussions of planning systems in different countries are concentrated around the dilemma of "flexibility" and "certainty" (Ozkan & Turk, 2016; Buitelaar & Sorel, 2010; Rivolin, 2008). The current literature indicates that the place of flexibility in urban development is still trying to be defined by the professions (Munoz Gielen and Tasan-Kok, 2010; Tasan-Kok, 2008). Flexibility is directly affected by national and international economic, political, and social shifts. Generally speaking, flexibility has developed as both a cause and a consequence of the legal changes in the political, institutional, and planning processes (Ozkan & Turk, 2016; Steele and Rumig, 2012; Buitelaar & Sorel, 2010; Tasan-Kok, 2008; Booth, 2003). As changes occur in factors such as international relations, political structures, modes of production and social structure, they create differences within the dynamics of space and therefore the problems and expectations of its users. Consequently, this process brings about discrepancies in administrative structures and planning actions (Tekeli, 2012). In this respect, the tendency towards the concept of flexibility is particularly influenced by the four factors; (1) the balance between public and private sector actors in urban planning, (2) countries' planning approaches, (3) the financial strength of the public sector, and (4) the investment demands of the private sector (Ozkan, 2012).

In the planning literature, there is a reoccurring pairing between the concepts of regulatory planning and discretionary planning (Rivolin, 2008). The regulatory planning system has shown a move away from certainty towards flexibility. At the same time, the developments regarding sustainability and economic growth have led to rigid, inflexible discretionary planning systems that fail to realise the strategic policy vision (Steele & Rumig, 2012). In regulatory planning systems where local spatial plans are legally binding, certainty is at the forefront. In this case, the development rights granted in the plans are valid from the moment they are approved. Planning decisions in this system are legally binding for everyone, and development rights are regulated in detail through plans (Munoz Gielen and Tasan Kok, 2010). In discretionary planning systems where local spatial plans are not legally binding, flexibility is at the forefront. In such systems, planning decisions provide strategies rather than define development rights; such rights are determined through the reconciliation and negotiation processes of each project (Rivolin, 2008: 169). In the cases of some European examples, that since plans take time to negotiate and prepare, the preoccupation was typically with projects, not plans. This provided the flexibility to respond to pressures for spatial development (Taşan-Kok, 2008).

While planning requires flexibility in the development of new projects, certainty is necessary to maintain development in cities and protect individual rights (Buitelaar and Sorel, 2010: 988). However, the proportion of certainty and flexibility in planning systems varies from country to country (Booth, 2003). For example, while the British and

Dutch planning systems prioritize flexibility, the American and French systems place greater emphasis on legal certainty (Munoz, 2010; Buitelaar and Sorel, 2010: 983). A two-way trend was observed in the implementation of planning systems in the study that was commissioned by the European Commission. According to this study, countries with regulatory planning systems tend to have more flexibility, while countries with discretionary planning systems strive to provide more certainty (Booth, 1996). In other words, there is on the one hand an effort to create certainty concerning control over building in planning systems, while on the other there is a search for flexibility in decision-making processes (Booth, 1996: 10). As a matter of fact, many planning systems have hybridized the characteristics of regulatory and discretionary planning systems, which implies that the ideal system finds middle ground between certainty and flexibility (Kılınc and Turk, 2018 a,b; Steele and Ruming, 2012: 159).

Flexibility is also ensured by assigning discretionary powers to relevant authorities involved in decision making by means of legal regulations (Booth, 1996). In multi-actor decision-making processes, flexibility simplifies the decision-making mechanism and expedites the process (Tasan-Kok, 2008; Biggar and Siemiatycki, 2020). According to the findings of Biggar & Siemiatycki, Toronto proves to be a good example to understand how both administrative and political discretion work interchangeably. The findings of Biggar and Siemiatycki's (2020) study demonstrates that while the landowners are looking for certainty about the construction right of their land, they also expect flexibility in giving them additional rights with the negotiation process. Some planning theorists consider that in circumstances where the use of discretion to evade or to vary policy carries risks (Catney and Henneberry, 2012). However, controlling development in an ad hoc and less predictable way creates legal uncertainty. In addition, when both politicians and urban planners are given much discretion, it becomes difficult to defend the public interest against demands by powerful actors (Buitelaar and Sorel, 2010). The negotiation process takes place outside of the realm of the legal processes in countries where flexibility in planning emerges as a characteristic of informal arrangements (Ozkan and Turk, 2016). For example, in Ireland, powerful interests use informal strategies to bypass the rules of formal planning system which can prevent the effect of their economic power on the decision-making (Fox-Rogers and Murphy, 2013:262).

In recent years, there has been a trend in planning systems with more flexibility and less rigid rules (Voltanen et al., 2017; Munoz Gielen and Tasan-Kok, 2010). In cities that have a planning system based on rigid rules, planning seems to be challenged in developing a creative approach that will balance the needs of the market with the public interest given the new developments. Instead, it appears that there is a corrective-regulatory trend to approve new developments within the rules and constraints of the existing system. Within this framework, local

governments have made efforts to revise existing plans by evaluating individual requests rather than developing strategies for new developments in the city as a whole (Tasan-Kok, 2008; Munoz Gielen and Taşan-Kok, 2010).

The aim of this article is to analyse the flexibility and its consequences that have resulted from the legal regulations related to urban renewal by taking into consideration urban renewal practices in Turkey. International literature research shows us that flexibility is mostly shaped by less rigid rules in spatial planning, facilitating the intervention to property rights and increase in the existence of discretionary power. In Turkey, in renewal practices, the extent and content of such a flexibility that has emerged due to legal sources, have changed since 2004 significantly. Therefore, as methodology, the legal sources related to urban renewal (North Ankara Entrance Urban Transformation Project Law No. 5104, dated 2004; Law on Protection and Usage of Historical and Cultural Immovable Assets by Renewal Law No. 5366, dated 2005; Municipalities Law No. 5393 Item 73, dated 2005 and Amendment Law on Municipalities Law No. 5998, dated 2010; Transformation Law for Areas at Risk of Natural Disaster Law No. 6306, dated 2012) analysed in the sense of flexibilities that occurs in spatial planning, property rights, and by the using of discretionary power through sample areas.

Following the introduction, the features and characteristics of the regulatory planning system in Turkey are given. The third section examines how flexibility has shaped in urban renewal practices and planning system from past to present in Turkey. In the fourth section, flexibility and the consequences that have emerged in the legal sources about urban renewal practices since 2004 are comparatively analysed through various sample areas. Finally, in the last section, consequences such a flexibility, and suggestions in the legal resources related to urban renewal practices in Turkey are given.

TURKISH PLANNING SYSTEM

Planning systems are divided into regulatory planning systems and discretionary planning systems. In Turkey, urban planning is provided through the regulatory planning system (Tarakci and Turk, 2018; Ozkan and Turk, 2016; Keleş, 2012; Ünlü, 2006; Ersoy, 2000). The regulatory planning system is designed to lead the development of space in accordance with the decisions of the plan. It is transferred to the development plan of the new use decisions of the land in order to apply these decisions that have definite results (Rivolin, 2008). Rivolin (2008) defines the regulatory planning system as being based on "hierarchy," and "legally binding," characterised by "certainty" and "rigidity."

One of the important characteristics of the Turkish planning system is the existence of a "hierarchical" order (Demir, 2009). Planning legislation consists of hierarchically interdependent planning scales (Demir, 2009; Ozkan, 2012). In addition, each subscale is expected to involve more information and detail compared to the scale above and include the

necessary information and data of its unique scale, while at the same time preserving the main decisions (Ersoy, 2000). However, since the regulatory planning system has not been able to respond to the dynamics of a city within the last 25-30 years of planning history in Turkey, it is a fact that the upper scale planning approach has been disregarded by the local governments, and urban space development has become dependent on small-scale projects instead of plans, due to the influence of neoliberal policies. Today, especially in the development of big cities, it is almost entirely dependent on small-scale projects (BIB Urbanization Forum, 2009; Ozden, 2006). There is a view suggesting that for a plan to be binding for all real and juristic persons and to acquire legal document status, it needs to be adopted and approved by political decision makers (Keles, 2012). In Turkey, Reconstruction Law No. 3194 states that local spatial plans have to go into effect following the approval of the city council. In this sense, the framework presented by the planning approach and implementation is a regulatory system that highly depends on "certainty" and that sets the standards for all cities at the national level (Ünlü, 2006). In addition, plans that reach the suspension time limitation and are finalised are worthy of legal document status, with significant consequences that bind real and juristic persons (Keles, 2012). For this reason, each local spatial plan is a whole within itself and has its own legal qualifications (Ozkan, 2012).

It is understood from all this that Turkey's planning system is a regulatory planning system that depends on precision in terms of development legislation. However, in recent years, significant changes in this system, have triggered a shift in the planning system which is defined as regulatory in theory, towards a more flexible system in practice (Ozkan and Turk, 2016).

SHAPING OF FLEXIBILITY IN URBAN RENEWAL PRACTICES IN TURKEY

In Turkey under the influence of neoliberal policies, urban development was increasingly shaped by private sector dynamics, while the public sector took a more and more passive role (Tasan-Kok, 2008). However, such arrangements have adopted a non-flexible, prescriptive, and rigid planning approach, creating a conflict between growing investment pressure and planning (Tasan Kok, 2006). In managing changes in urban space, the planning system is based on a regulatory model. The literature often emphasizes that planning determined by "local plans" lack flexibility (Ozkan and Turk, 2016; Keleş, 2012; Taşan-Kok, 2006; Ozden, 2006; Ersoy, 2000). In this sense, the current planning system does not offer the flexibility and interpretation potential necessary for the management of such change (Ünlü, 2006). Those affected by plan have often attempted to make up for this shortcoming through local political relationships (Ozkan & Turk, 2016). Moreover, the policies of 1990s period resulted in increased partial land development in urban areas, while at the same time central and local governments failed to make

available both land and housing and establish mechanisms to inspect the suitability of new land and housing for detailed local plans (Unsal and Turk, 2014).

Until the early 2000s, there was no systematic urban renewal policy in Turkey. During this period, mostly small-scale developers practiced renewal at the single-building scale (Turk and Korthals Altes, 2010). Especially after the 1999 Marmara earthquake, the aging texture of the cities, the low quality of the building stock, and the existence of areas prone to geotechnical risks highlighted the importance of city-scale urban renewal practices (Guzey, 2016). Urban renewal was emphasised again as a risk mitigation tool for natural disasters (Kuyucu and Unsal, 2010). In beginning of the 2000s, the government adopted a housing-oriented policy. This policy has led to a construction boom with increasing investment pressure on inner city areas, which became important investment locations for the real estate sector (Ozkan and Turk, 2016). The pressure to increase the capital/land ratio due to rising land prices in rapidly growing cities, and the resulting demand for high density reconstruction of the non-functional or decentralisation of industrial zones into urban fringes, and an increased demand for the reconstruction of licensed or unlicensed residential buildings, along with the projects of local governments that are in competition to receive the capital in the era of globalisation, have raised the momentum of urban renewal practices (Kocabaş, 2005).

In recent years, Turkey's planning system has adopted a decision-making approach based on fragments of the cities rather than considering of a city as a whole, leading to an increasingly flexible according to market demands (Ozkan and Turk, 2016; Tasan-Kok, 2006). However, the flexibilities and open negotiation processes in the relations between local governments and the private sector, as is the case in countries with discretionary planning systems, did not emerge here (Turk, 2018).

Since this period, also urban renewal projects have progressed through project-led approaches, developing a dynamic structure. Such approaches were also supported by legislation specific to urban renewal (Tarakci and Turk, 2018). There are some consequences of this approach in urban renewal practices. The most important of these is gentrification (Islam and Sakizlioğlu, 2015; Gervan et.al., 2013; Ergun, 2006). Landowners are generally given new housing units in the project area in exchange for their own plots (Türkün, 2014). The houses, built with a project-based approach, are generally for middle- and high-income, so that, in most cases, landowners are not able to bear the cost of their new houses (Uzun, 2015; Gervan et.al, 2013). Because the newly created social and technical infrastructures cause the unit prices of housing to increase, and the actual property owners cannot live in the area (Gur & Turk, 2014) the projects are conducted according to the demands of national and international capital, and as a result, these areas are gentrified (Uzun, 2015; Türkün, 2014; Ergun, 2006). Groups such as de facto owners, occupiers, and tenants are generally unable to remain in areas post-

renewal (Ozkan and Turk, 2016). So that gentrification is the most discussed issue for urban renewal practices in Istanbul such as Tarlabası, Sulukule and Ayazma (Türkün and Sarıoğlu, 2014). Studies show that gentrification is not a problem caused by local governments, but rather a consequence of greater powers restructuring and regulating urban production, and thus the displacement of the urban population (Uzun, 2015).

'FLEXIBILITY' IN THE LEGISLATION ON URBAN RENEWAL

In Turkey, legal sources have played important roles in urban renewal practices. These roles have been shaped by urban renewal practices that has gone into effect since the beginning of the 2000s. The common point of the legal arrangements is that they redefine planning as a structure that is flexible. In this respect, the flexibilities for urban renewal projects by these laws are explained in detail below.

Flexibility in urban renewal legal sources occurs in three different ways: 1-Flexibility that occurred by spatial planning, 2- Flexibility that occurred in property rights, 3- Flexibility that occurred by using of discretionary power. Flexibility that defined in legal sources has affected the urban renewal practices directly.

Flexibility that Occurred in Spatial Planning

In spite of the fact that Turkey planning system is plan-led, urban renewal implementations follow a project-based approach (Ozkan and Turk, 2016; Türkün, 2014; Tasan-Kok, 2008). The project-based approach adopted in urban renewal areas introduces a planning system determined by plan notes rather than detailed planning in which all development rights are determined, as in the regulatory planning system. For the most part, decisions required to be made in the plan are not provided in the plan itself, but in these notes; for instance, decisions regarding land use functions, development rights, parcel sizes, social and technical infrastructure areas, incentives related to development rights, etc. are provided in the plan notes (Ozkan and Turk, 2016). While plan notes were originally used to provide the details not indicated in the local spatial plans, their purpose has changed over time (Turk, 2018). Today, plan notes are used as the most effective tool that guides urban development (Tarakci and Turk, 2017). Although the plan, plan notes, and plan report are defined as a whole and consistent entity in our country's legislation, the implementation of urban renewal is carried out solely through plan notes. For example, in Fikirtepe urban renewal project, the implementation was made by depending on plan notes, and even, plan notes outstripped the plan (Tarakci and Turk, 2018). Moreover, in urban renewal practice, the usage function of the areas in the immediate vicinity of the project area, the balance of social and infrastructure areas, and density are not taken into account (Ocakçı et al., 2017).

Urban renewal practices since 2004 are applied with special purposed laws that adopt the approaches of the discretionary planning system. Bektaş (2014) reveals that following Municipality Law No. 5393 in 2005 and Law No. 5998 in 2010, declarations of urban renewal areas gathered momentum, and that when the years of declaration in Ankara are examined, a 26% section was concentrated in the year 2005. At the same time, an 80,000-hectare residential area of Ankara includes about 45% urban renewal areas, which further proves the extent of these areas. In addition to urban renewal practices being a planning option, declarations of urban renewal areas cover nearly half the city's residential area (Bektaş, 2014). This study shows that half of the urban area of an important city such as Ankara is constructed with the approach of discretionary planning system whereas the other half develops with the regulatory plan system (Tarakci and Turk, 2018). However, this distinction is not in two different areas, but the renewal areas are located in different parts of the city. For this reason, regulatory planning dominated by 50% of the city is ineffective with fragmented interventions.

Besides, in the special purposed laws related to urban renewal, there is no emphasis on spatial planning. For example, one of the most important aspects of the Law on Protection and Usage of Historical and Cultural Immovable Assets by Renewal No. 5366 is the common emphasis on project rather than on planning. This is to such a degree that the law in question mentions simply "renewal projects", without reference to local spatial plans, drawing up a plan and approval, or in short, with no information on anything with regards to planning (Ozden, 2013). The law in question makes no mention of a relation between the projects and the local spatial plans in use for the zone the projects refer to.

According to the latest legislation Law No. 6306 on the Transformation of Areas under Risk of Disaster came into the force in 2012, Ministry of the Environment and Urbanization is the most powerful authority in the implementation of an urban renewal project (Gur and Turk, 2014). Law No. 6306 gave identification, planning, and licencing power related to urban renewal areas to the Ministry. Especially considering the broad framework of the definitions for risky structures, risky areas and reserve spaces, the greatest flexibility is provided in the authorisation for planning; and thus, the Ministry is granted the flexibility to conduct any type and scale of plans as preferred. Article 57 of the Constitution imposes important duties on the state in terms of housing legislation. The state is obligated to take necessary precautions for the residence of its citizens in healthy housing. The measures taken under Law No. 6306 can be considered as measures to meet the need for healthy housing (Simsek, 2015). Based on this reason, Law No. 6306 grants administrations a very broad authority, and with this authority, flexibility is provided both in planning and implementation. This flexibility is especially used by the central government. In addition, construction companies seem to have a significant say in these processes. However, there would be much benefit

to include the municipalities in the implementation. The municipalities' coordination of relations between the construction companies and their owners can facilitate implementation. The law prevents this function of the local governments by giving more authority to the Ministry (Üstün, 2014).

Flexibility that Occurred in Property Rights

The property right is protected by the 35th item of the Turkish Constitution, and these rights cannot be limited except for public interest. Urban renewal projects aim to restore derelict and obsolescent areas economically, socially, physically and environmentally over the long term to establish of healthy living spaces. From this point of view, urban renewal is a tool directly affects property rights (Tarakci and Turk, 2015). Therefore, the property rights has been key since the beginning of urban renewal projects and determine the way are managed by categorising the residents.

Since Turkey's urbanisation policies depend on day-to-day politics, there is a wide variety of property documents even in the same neighbourhood. Urban renewal practices are shaped depending on the legal status of the property (Şen and Turkmen, 2014), such as land allocation certificates, land titles and those without any certification. This confusion of property consequently creates profound distinctions between those who have land allocation certificates and land registration (title) documents, and those with no documentation. While those who with legal property can negotiate more with the municipalities during the agreement stage, those who without legal property are willing or obliged to accept offers in negotiations (Kuyucu and Ünsal, 2010). For example; The North Ankara Entrance Urban Renewal Project planned getting rid of the gecekondu in the area completely and building common spaces and high-rise buildings (Kütük İnce, 2006). Moreover, the city council holds the authority of the distributions at the end of the project, and there are no objective criteria for distributions, as it is based on agreements. That is, the city council has been authorised to determine the qualifications of houses and workplaces that will be given to real estate owners in accordance with the land amounts, the size that is required for property right ownership and the qualifications of the houses that will be given to owners of the gecekondu with land allocation certificates. However, the criteria for application of these acts are not explained by the law or its regulations. At this point, flexibility in the distribution of ownership at the end of the project has been enabled by allocating a great deal of flexibility to the municipalities.

Legal sources related to urban renewal give the discretion power to public authorities on important issues such as valuation and expropriation. This situation enables a great deal of flexibility in urban renewal practices. Within the scope of Law No.5366, for evacuating and demolishing the structures within renewal areas during the implementation process of the projects, the primary method is

agreement. When no agreement can be reached, the method of expropriation for the estates in the possession of juristic persons is used. However, in order to expropriate, a public interest ruling is required. In the urban renewal process, urgent expropriation process is generally used. Comparing to standard expropriation process, urgent expropriation greatly speeds up the process. As a general feature, in expropriation processes related to urban renewal, compensation is determined according to the existing situation. Therefore, the compensation is quite low. For example, it is known that the price per square metre for the 360 Ofis Project built and sold after the Tarlabaşı Urban Renewal reached \$7,500. All five-storeys of the registered building right next to this project, on the other hand, was expropriated for 760,000 Turkish liras (\$420,000). This means that this person whose building was expropriated will be unable to buy even a 100m² office from this project (Türkün and Sarıoğlu, 2014).

Also, flexibility in property rights presented by Law No. 6306. The law states that decisions can be made by at least two thirds of the landowners after liquidation in these risky areas, on the real estate where the risky structures are located, and at the reserve spaces. The land shares of the landowners not participating in the decision making are then sold to the rest of the landowners by auction based on their market value. In cases where sales are not made to the landowners, the land is purchased by the Ministry for its market value. If at least two thirds of the landowners cannot reach an agreement, land can be urgently expropriated by the Ministry of Environment and Urbanization, MHA (Mass Housing Authority) or the Administration. It is stated in the decision of the Constitutional Court, dated 27.02.2014 numbered E: 2012/87 K: 2014/41, that the urgent expropriation to reorganize the real estate's residential status in the settlements at risk of disaster, is for public interest. Because the life safety of landowners is the most important factor here. The ratio of 2/3 stipulated by law has been criticised for not being based on objective data and life experiences (Özsunay, 2015). However, the explanation has been that this regulation was made out of the ordinary with a broader perspective on the law due to an intention to accelerate the procedures. However, the most fundamental issue here is the obligation to get the shares of the landowners who do not participate in the majority. This is considered a new situation where the consequences of non-participation are outlined as exclusion from that community (Kürşat, 2013).

Flexibility that Occurred by the Using of Discretionary Power

After 2004, the government began to institute legal regulations addressing area-scale urban renewal projects. Under these regulations, both the central and local governments are given discretionary power over urban renewal processes, which also provides a great deal of flexibility in urban renewal practices. Discretionary power is defined as "room for decisional manoeuvre possessed by the decision-maker" (Jowell 1973:178); "possibility of decision making by the administration,

either freely or by choosing one of the options available under certain circumstances" (Yayla, 1990: 77). The most important actors of urban renewal implementation are the Central Administration (MHA, the Ministry of Environment and Urbanization, and local governments (Metropolitan Municipalities, Municipalities, and Special Provincial Administrations).

Since 2004, MHA gained general power in urban renewal areas with the amendments in the laws. Relocation of the low-income groups both living in gecekondu areas and collapsing city centres to remote areas by MHA has become one of the policies during this period. In 2010, Municipality Law No. 5998 went into effect for amendments to Article 73 of Law No. 5393. With this law, the authority of the municipalities was reduced, while the authority of the metropolitan municipalities were expanded. The law in question rules that the area to be declared an urban renewal area should be no smaller than 5 and no bigger than 500 hectares and that more than one place related to the project area may be declared one urban renewal area, provided that the total is no less than 5 hectares. On the other hand, there are no parameters for determining the size of the area. The law gives metropolitan municipalities discretion to determine the urban renewal area. For example, in the Maltepe district of Istanbul, a 93-hectare area has been declared the Başbüyük Neighbourhood Urban Renewal Area. The initial work on urban renewal in the area started with the "Protocol Regarding the Urban Renewal Project in Maltepe, Istanbul" signed by MHA, the Istanbul Metropolitan Municipality, and the Maltepe Municipality on February 24, 2006 (Şen and Türkmen, 2014). Six 14-storey blocks were built in this area by MHA in the first stage, and the process is ongoing. The most recent development is the approval of the land use plan for the area by the Istanbul Metropolitan City Council on March 18, 2017.

Another example is from Law No.5366, in Neslişah and Hatice Sultan Neighbourhoods (Sulukule), an area of about 9 hectares declared a renewal zone in 2005. By law, the project was carried out jointly, in accordance with a protocol signed by the Fatih Municipality, the Istanbul Metropolitan Municipality and MHA. Even though the project was cancelled due to the fact that it was contrary to the urban planning principles and public interest, the project was completed by the time the decisions was approved by the Court.

Until 2012, urban renewal areas are identified by local governments. However, in 2012, Law No. 6306 on the Transformation of Areas under Risk of Disaster, the latest legislation on this matter, delegated this power to the central government's Ministry of the Environment and Urbanization (Kuyucu, 2018). The justification of the Law No. 6306 is the risk of earthquake, is the most emphasised rationale for also urban renewal in Turkey. The JICA report regarding the risk of earthquakes (JICA, 2002) stated that there were more than 400 districts that required large-scale redevelopment or strengthening. The Istanbul Earthquake Master Plan (METU, ITU, BU, YTU and IMM, 2003) has further improved

this analysis. However, Tarakci and Turk (2015) revealed in their study conducted throughout Istanbul that the urban renewal areas declared by the Ministry were not identified in light of the results of the JICA Report and the Istanbul Earthquake Master Plan, but instead based mainly on the housing market. For example, the Derbent district (Şen and Öktem Ünsal, 2014), which is located next to the Maslak-Büyükdere Hill and has the highest land prices in Istanbul, 92% of which is composed of gecekondu, is worthy of attention for its unresolved urban renewal issues especially since the beginning of the 2000s. As a solution, the area was declared a "risky area" on 03.01.2013 by the decision of the Council of Ministers. This verdict for a risky area was annulled as a result of the lawsuit filed by the residents of the neighbourhood, in 2014, by the 13th division of the state council on the grounds that the area was declared risky based on "observational and general information, not a technical report." However, with another decision of the Council of Ministers on 03.01.2017, the area was once more announced as risky. Likewise, the characteristics of the reserve space, whether risky or not, were not clearly defined in the law, and the appointment of reserve spaces was left to the discretion of the administration. The Ministry of Environment and Urban Planning has identified 8 reserve areas of 34,704m² on the European side of Istanbul.

Another important discretion power given by Law No. 6306 is related to the restriction of use. The Ministry may request from the relevant authorities not to provide electricity, water and gas to the structures in risky areas or risky structures. This restriction of use was not found contrary to the Constitution. According to the decision of the Constitutional Court dated 27.02.2014, numbered E: 2012/87 K: 2014/41, it is considered reasonable action to stop providing electricity, water and gas services for residents who refuse to evacuate the buildings that are at the stages of "evacuation and destruction," and thus force their evacuation. However, withholding the services of electricity, water and gas in accordance with this regulation is a threat to an individual's right to health. This may lead to the abnegation of a public benefit (health) which is superior in terms of ensuring the continuity of the project. On the other hand, the above-noted regulations are not compatible with the principle of uninterrupted provision of public services or the social state principle (Üstün, 2014).

This situation was enabled by the power of discretion given to authorities by the urban renewal legislations. From the point of view of the local governments, it is stated that the contribution of the public sector to the partnership is the planning of land use and supply of land, municipal services and infrastructure services, and most importantly, establishing and sustaining the communication between the public and the private sector (Ozden, 2006). With the introduction of the recent legal sources, the authority of the central government has increased, while the role of local governments has decreased regarding urban renewal. This situation

demonstrates that discretionary powers are mostly held by the central government.

GENERAL EVALUATION AND CONCLUSION

Since 2000, Turkey have triggered a shift in the planning system which is defined as regulatory in theory, towards a more flexible system in practice. Existence of such a flexible system can be also seen in urban renewal practices. The aim of the article is to examine the flexibility shaped by the legal sources with examples of urban renewal in Turkey. In this article, the shaping of flexibility was examined under three headings in the study and some findings were reached.

First is related to flexibility that occur in spatial planning. A project-led approach has been adopted in urban renewal practices, moving away from the previously more plan-led system.

Spatial planning that decides about the future of the cities is made for the purpose of public interest. Spatial planning has some basic objectives. These are; first is to equitably distribute costs and benefits; the second is to provide social and technical infrastructure for public use in cities; the third is to ensure spatial and social integration; and the fourth is to provide spatial quality (Ozkan and Turk, 2016; Kim, 2011; Klosterman, 1996). However, it is seen that in urban renewal practices, many subject that need to be plans were not explained and plan's decisions left to the plan notes. Here, flexibility is provided by plan notes. For example, building heights, dimensions and shapes of structures, floor areas, architectural features, residential typologies, etc. determined by the plan notes. In actuality, these specifications are made very strictly in the traditional planning approach in Turkey. The freedom granted to the developer by the planning unit, with no guidance or restrictions imposed, causes the implemented projects to develop in an incompatible fashion to the texture of the surrounding residential areas (Ozkan and Turk, 2016). Moreover, throughout the process, starting with the planning until the end of the building license procedures, authorising only the Ministry causes a lack of inspection. On the other hand, varying from Turkey's planning system, especially in historic city areas, "project" instead of "plan" concept is brought to the foreground. The extent of flexibility has a direct effect on the provision of planning outcomes because uncertainty created by extreme flexibility can jeopardise the provision of the desired planning outcomes (Ozkan and Turk, 2015). At this point, the degree of flexibility is crucial for the balance between the benefit of the private sector and the public interest.

Second is related to flexibility that occur in property rights. Although all laws presume that "agreement forms the basis", negotiations, which are the basis for discretionary planning systems, have never been defined in the existing laws. The right to expropriation and even urgent expropriation creates pressure on property owners. Negotiations for agreements in cases where there are no equitable and equal rights do not have the attributes of an actual negotiation. The ratio of 2/3 stipulated by

law has been criticised for the obligation to get the shares of the landowners who do not participate in the majority. These obligations damage the property right of landowners. Making decisions with the majority provides flexibility regarding the right to property. Sometimes, land owners may have to leave where they live, or to sell their property very cheaply. Particularly in countries experiencing problems such as economic uncertainty such as Turkey, ownership of property is considered to be financially secure by society. So that although the recent laws and constitutional court decisions related to urban renewal are considered to be in the public interest due to the earthquake hazard, the fear of losing ownership of property can prevent urban renewal practices. So, the degree of flexibility has a critical significance in terms of protecting the ownership right of landowners living in urban renewal areas. In this condition, it is needed to urgently produce solutions that will both increase urban renewal practices and protect the property rights of individuals.

Third is related to flexibility that occur by using of discretionary power. From the identification of the area to undergo urban renewal to identification of property rights of owners a significant amount of discretionary power was given to the administrations. The discretionary power first was given to the municipalities, which are then transferred to metropolitan municipalities, and finally to the central government. The latest legal regulations in particular seem to transfer the powers held by local governments to the central government. According to the Constitutional Court's decision published on 23rd of July 2012 in the Official Gazette, both the aforementioned discretionary power and the project-led approach to the planning system were found reasonable. Thus, while in urban renewal practices, as the discretionary power of central or local governments increases, in the process, participation of the land owners decrease. Landowners have no idea about what happens to their property or living.

As a result of the increase in the degree of flexibility, it can be possible to a great uncertainty in society at the future. On the one hand, landowners experience uncertainty about how their building / neighborhood will be after urban renewal, while on the other hand developers are uncertain about the criteria of their projects. This uncertainty, on the other hand, causes the efforts of all actors to maximize their interests. Thus, urban renewal practices turn into an enrichment tool. This situation is in fact affect all society because no one can foresee any predictions about how the city will become in the future with uncontrolled planning. In this situation, it is clear that basic principles like protection of natural areas and cultural values, ensuring high social and technical infrastructure standards and quality and accessing all social groups will be damaged. At this point, it is necessary to control the increase of flexibility in order to protect the public interest and property right for the future of the cities. The article suggests that the balance in the degree of flexibility gains more importance in developing countries like Turkey.

In countries where regulate in the degree of flexibility in planning systems, some regulations have been introduced on the negative effects of flexibility and how these effects can be controlled and managed by administrations in the urban area. Also, in countries where regulate in the degree of flexibility in planning systems, administrations attach importance to ensuring social equality in urban areas. In order to ensure social equality in urban space, it takes measures to ensure that different social groups live together in both urban renewal areas and the city's development areas. Therefore, arrangements are important for high standards and quality of social and technical infrastructure areas in urban areas and to ensure the access of all social groups. Again, in countries where regulate in the degree of flexibility in planning systems, principles for the protection of natural areas and cultural values are determined by administrations. If all this is achieved, flexibility can be controlled and managed.

In Turkey, to overcome the gap between theory and practice flexibility in three ways should be defined in legal sources related to urban renewal. For example, it should be known when plan notes will be used. Also, it should be known in which situations the discretion power will be used, and its limits. With defining of flexibility by means of legal regulations, taking place outside of the realm of the legal processes or using informal strategies to bypass the rules of formal planning system can be removed. Otherwise, flexibility as uncontrollable power might become the planning system unfunctional.

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No conflict of interest was declared by the authors.

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Resume

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Assessment of The Rural Economic Structure of Gdl Town (Ankara) by Quantified Swot Analysis

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Abstract

Purpose

Rather than solely having agricultural production at its core, rural development comprises of a multiaxial structure in which the socio-economic structure develops, non-agricultural economic diversification is assured, and a governance-based approach is adopted in the organization and participation mechanisms. The applicability and consistency of these intertwined axes entail an integrated approach to efforts in rural development. With the purpose of uncovering the critical points of the process, creating strategies intended for rural economic development within the axes valued by different stakeholders, and strengthening the participation mechanisms, SWOT Analysis, Analytic Hierarchy Process (AHP) integrated method, and TOWS matrix have been used to identify the Gdl rural economic development model.

Design/Methodology/Approach

In this study, the hierarchical structure established for the economic structure of Gdl is placed on the foundations of a SWOT analysis, quantified through Analytic Hierarchy Process, and evaluated within the framework of the three stakeholder's perceptions (local people, experts, and local governments) according to their priority values.

Findings

Thus, the extent of the respective effects of important factors in rural economic development has been identified. In conclusion, the decisive role of quantified methods in the identification of strategies and policies utilized in the process of Gdl's rural economic development has been manifested. Various strategies supporting the rural development and also institutions responsible for the implementation of these strategies were designated in light of the needs of Gdl and the expectations of the local people living in rural areas.

Research Limitations/Implications

The version of the questionnaire forms compatible with the SWOT-AHP technique, the scarcity of local manager surveys, the lack of answers to the questions of the local people are among the main difficulties encountered.

Originality/Value

This study is quite original in that it is the first strategic rural development plan model made specifically for Gdl, related to the participation of indigenous people in planning initiatives and transparently reflects the sometimes combined and sometimes changing views of local people, experts and local administrators about the importance of SWOT groups has a quality.

Keywords: Analytic Hierarchy Process, Gdl, Rural Development, SWOT, TOWS

INTRODUCTION

The concept of the rural area that has been recognized as the opposite of the urban and explained through conventional theories and approaches shows, indeed, a great variety in accordance with its history, traditions and potential. There is not an agreed upon and universal approach used to define the rural area (Nijkamp, Baycan, & Gulumser Akgun, 2006).

Changes in social and political conditions, diversity in global and economic policies make the boundaries of cities and rural areas increasingly uncertain. This uncertainty brings new planning tools for rural and urban areas into the agenda, and many countries continue to seek planning specific to their own structure (Champion and Hugo, 2004).

Frequently referred to as “village development,” rural development includes organization mechanisms and multifaceted processes in which local inhabitants are directly affected. Problems pertaining to rural development are approached from various aspects (physical, socio-economic, political etc.) in consideration of the long-term support and the benefits to public (Geray, 2011). Although the conceptual framework for the rural is known to stand opposite of the “urban,” the fact that this opposition is losing its validity with the influence of global factors, that the majority of the world population struggles to exist in urban areas for various reasons, and the already nebulous boundaries between the rural and the urban are further blurred necessitates constant rethinking of the concept of rural (Tekeli, 2016).

Compared to urban areas, rural areas are small-scale settlements in terms of density, area, and capacity, which leads to numerous problems with regards to governance as well. Various definitions have appeared due to changing rural textures, and the transformation in the structure and the texture the rural areas has enriched these definitions (Özkan, 2007). Rural areas cannot be defined with a generalized point of view (Baycan Levent, Gulumser, & Nijkamp, 2010) due to several factors such as population and density, socio-economic and demographic structure, and idiosyncratic characteristics that distinguish rural from urban areas (Ilbery, 1998).

Besides exhausting their resources, rural areas, dominated by a production-based structure, have also started being dependent on urban areas under the inevitable influence of the globalization process. As part of the negative effects of globalization, the consuming society has caused an upsurge in the service industry in rural areas and relegation of agricultural production to the level of a hobby practice (Tekeli, 2016).

Changing and flourishing industrial structure leads to a diversification of the rural economy, which entails a transformation in the socio-spatial structure. Unique to a region in the relationship between the global and the local, rural texture proves to be an important tool in regaining the former attraction of rural areas by focusing the attention on rural industry, tourism and service industry. (Epstein and Jezeph, 2001; Costis, 2003; Davoudi and Stead, 2003; Yenigül, 2017).

The complex structure brought about by the authenticity of rural areas and non-holistic planning approaches makes the managing of the development process even more difficult. SWOT analyses including different points of view enable the identification of the current situation of a rural area in a transparent and fair way as well as helping reveal the expectations from the area. By hierarchically organizing the quantitative and qualitative values that are hard to quantify, AHP, in this respect, significantly contributes to the analyses of the present situation that would lead the development process. (Rovai & Andreoli, 2018).

Rural development is defined on three intertwined axes. The first one is encapsulating a broad framework including the inhabitants of rural areas and the vitality of rural spaces. Second one is working in line with the physical, socio-economic, and environmental sustainability goals. Finally, the last one is achieving social welfare on the basis of sustainable rural development (Moseley, 2012). At this point, besides ensuring agricultural productivity for the rural economy to gain competitive power in fast changing markets, several participation-based approaches were developed to sustain the living conditions of rural populations. These approaches identified the local distinguishing characteristics and aimed to preserve the natural and cultural assets of rural areas. Especially queries such as "localization, empowering local populations on site, and participation of all stakeholders in development processes" have contributed to the approaches to rural development (Glbuk, 2015).

Rural development studies inquire answers to questions such as "Who is the target population?"; "Who will execute?"; "What will be done and how will it be concluded?"; "What is the measure of success?"; and "How will it be rendered sustainable?" Assessment of rural areas as a potential resource with economic value is further strengthened by the globally widespread concept of "sustainability." Sustainability of rural areas is possible only when the inhabitants of such areas embrace the natural and cultural living spaces; feel a sense of belonging to these areas; cultivate the soil in an informed, productive, and effective way; participate in the production; earn a satisfactory income; and use the income to enhance their standards of living. Utilization of social, cultural, and natural resources in rural areas will provide a significant economic power for our country. In order to assure this, sound policies that depart from correct areas and aim at accurate target populations should be devised.

The applicability and consistency of these intertwined axes entail an integrated approach to efforts in rural development. Depleting resources, diversifying and transforming settlement design patterns, and the ever-widening gap between income groups bring about a non-homogeneous distribution and a fast impoverishing rural society. In order to find solutions for the problems of settlement design patterns and to define a holistic development process, the current situation necessitates changes in rural economy policies that enable a fair and balanced use of resources. Gdl, a town 90 km away from the capital Ankara, has been facing problems such as a fast decrease in its population, diminished interest in

agricultural activities, heavy migration to the metropolitan area, wasteful consumption of environmental resources and the failure in eliminating regional inequalities. Neighboring towns Ayaş, Beypazarı, Çamlıdere, and Kızılcahamam successfully turned their natural and cultural resources into economic opportunities and made significant progress in rural development as opposed to Güdül. This study aims to present some information about the potential of the town and its physical, social, economic and administrative structure, and to identify the internal (strengths and weakness) and external (opportunities and threats) factors of assessment. Also, the following objectives have been set:

- Creating development strategies that could interpret the entire settlement area by using environmental, socio-economic and physical data.
- Presenting a model of a sustainable and holistic strategic rural development plan intended to serve as a guideline and a foundation for spatial plans.

This study explores how to benefit from the potential of rural areas by effective utilization of resources, how to evaluate the compatibility of the economic diversification with the socio-cultural and traditional structure of the local people, and how to make planning in line with this local texture. Within this framework, general information about the economic structure of the town is presented first and then the potential is evaluated. These assessments are based on the data acquired from stakeholders (local people, experts, and administrators) through qualitative and quantitative methods. SWOT analysis of the town's economic structure is prepared in light of the information obtained from these personal interviews. A model proposal has been developed consisting of SWOT analysis groups (strengths, weaknesses, opportunities, and threats) and SWOT factors. Findings are assessed in a comparative framework by using the Analytic Hierarchy Method, a multi-criteria assessment approach, and taking into consideration the factors regarding the town's natural, historical, and cultural policies as well as the goals on land-use. Weighted scores for the most appropriate economic activities that can be carried out in town are determined, and then the priority scores of the activities that got the highest weighted scores are calculated. Departing from the results of the analyses, alternative strategies are developed that will enable the effective utilization of resources for the economic amelioration of Güdül; identification of the attitudes, power, and expectations of all stakeholders; and placing these factors at the center of planning. Thus, this study aims at putting forward the most appropriate planning decisions.

This study identifies the priority values of the factors involved in the strengths, weaknesses, opportunities, and threats regarding the research area simultaneously and comparatively in terms of economics, and attributes particular importance to the actors and their participation while ascribing to these qualitative factors a dynamic, analytical, and

rational dimension. In this regard, the study is considered to be important with regard to its approach that permeates the whole process from decision-making to the identification of objectives and strategies, and through the implementation process.

CASE STUDY AREA

Research Findings

A transparent and participatory, open source, empirical, organizational and strategic approach was adopted in line with the research objectives. Primarily, a letter of intent was written in order to inform the decision-making mechanisms of Gdl about the research, which was followed by preliminary meetings. These meetings started with the mayor, as the representative of the local people, and the district governor, as the representative of the state. The said institutions played an active role in communicating with the local people.

In order to reach out to all the actors and stakeholders expected to participate in the process, an informational meeting was organized at the town center that included interactive and feedback-based workshops for women, men, and young adults. An invitation to this meeting was prepared and posted in the busiest parts of the town in addition to regular public announcements made by the municipal personnel.

Only 12 people participated in this meeting, including the municipal personnel and some of the notable figures of town. The past and the future of Gdl were discussed with the participants of the meeting and the primary needs of the town were identified. Also, through an exchange of ideas focusing on the expectations, suggestions, demands, the strengths, weaknesses, opportunities, and threats regarding Gdl were set forth, which culminated in the final version of the SWOT analysis. At the end of the meeting, a series of fruitful interviews were also conducted with the local shopkeepers of Gdl who could not attend the meeting.

A survey was implemented among the local people, experts, and local administrators, who are important actors in the executive branch during the process of strategic rural economic development. The problems in the area and relevant important points were laid bare in a participatory and transparent approach, and a series of interviews were conducted with the local people, experts, and local administrators with the purpose of identifying the characteristics of the town that determine the economic strategies. The future of Gdl and the status the town is expected to reach were paid particular attention in the interviews.

General Characteristics

Gdl is a town 90km away from Ankara. Its neighboring towns are Aya, Beypazarı, amlıdere, and Kızılcahamam. Although it is located within the greater Ankara metropolitan area, Gdl tries to maintain its rural characteristics. Gdl, which strives to protect its rural characteristics despite being under the influence of Ankara metropolitan municipality, distinguishes itself from neighboring towns and municipalities with its

high potential for rural development, efforts to preserve its rural characteristics, and administrative ties with Ankara, the capital of Turkey. The economy of the town that is primarily based on agricultural production has dramatically narrowed due to lack of developments in other sectors. This shrinkage in economy caused a regression in the socio-economic level of development and an increase in the rates of unemployment and migration to other towns and cities.



Figure 1. Ankara district border map (Anonymous, 2017).

The number of neighborhoods in GÜDÜL, which strives to preserve its particular characteristics and to sustain agricultural production, rose from 4 to 31 after the town joined Ankara Metropolitan Municipality in 2014. For this reason, maintaining rural characteristics has become further difficult for GÜDÜL that has also acquired urban traits. Integrating the advantages of urbanness and the existing potential of the rural that has yet to be used is of utmost importance for achieving the targeted level of rural development (Anonymous, 2017).

GÜDÜL, located in the northwest of Ankara, has hosted several civilizations since prehistoric times up until today. Kirmir Stream, a branch of the Sakarya River, Suvari Stream and İlhan Stream flow through the mountainous town and irrigate agricultural lands. The town has a humid micro-climate due to the Kirmir Valley situated in the north.

In GÜDÜL, located 90 km from Ankara city center, the only transportation is by road. When the characteristics of transportation and technical infrastructure of the town were examined, transportation connections and the diversity both within and outside of town were found to be inadequate.

The fact that GÜDÜL does not have enough public places and community centers despite its rich historical heritage and cultural and natural values considerably restricts the development of a social structure. A teacher's

lodge, a public education center, a social service and education center for women, and a dormitory are located at the town center. With a total of 31 neighborhoods, Gdl is home to 10 074 people according to the 2018 Census. Women comprise 51% (5095) and men 49% (4979) of the total population. (Anonymous, 2017).

Economic Structure

Although the economy of Gdl is suitable for rural economic development in terms of the town's geographical location, the economy is focused more on agriculture. The slowing down in the agricultural sector and the fast decrease in agricultural production in the post-1980 period in Ankara negatively affected the agricultural infrastructure of Gdl. A consumption, rather than production-oriented structure started taking shape, thus making it difficult to transform the rich agricultural potential into added value and an economic resource for the town. As opposed to cities that provide economic diversification, regressing agricultural production caused rural areas to be impoverished and made immigration a necessity for the local people. Currently, Angora goat husbandry and agricultural and animal products are the main pillars of Gdl's economy (Anonymous, 2019a).

The low production potential in the fields suitable for agriculture is among the factors that restrain agricultural production. Dry farming is done because of the effects of plateaus, and also irrigated farming is done on the irrigable parts of the valleys. In terms of land distribution, 66% of a 46737-ha-area is suitable for farming. Forests constitute the 16%, unused land 1.5%, and non-agricultural land 0.5% of the remaining area. The major crops in Gdl are wheat, barley, vetch, sunflower, corn, and tomato (Anonymous, 2019b).

Of the 20822-ha agricultural land, fields cover an area of 17780 ha, vegetable gardens 1090 ha, vineries 1500 ha, and fruit orchards 452 ha. In recent years, viticulture activities have gained importance at the town center and in adjacent neighborhoods, making Gdl a center for the production of the highest-grade table grapes. Of the 30478-ha agricultural land, the irrigable parts occupy an area of 2131-ha. 70% of irrigation is conducted by the local people and the remaining 30% by the State Hydraulic Works (ponds, dams, irrigation canals, and systems established by agricultural cooperatives) (Anonymous, 2019b). Fresh fruits and vegetables grown in the area are sent to Ankara for sale. Also, activities of cherry production and viticulture are supported for improvement (Kaplan, 2007).

Husbandry is one of the main sources of income of the local people. Registered pasture and forage areas cover an area of 7459 ha, and forages are mostly located to the east of Gdl town center. Local people have started having difficulties with grazing after the incorporation of forages in forest areas, and the number of animals is also gradually decreasing. Besides cattle (551 businesses) and small cattle (219 businesses)



husbandry, apiculture, fishery, and poultry farming are common in the area.

Although the entirety of the area is suitable for apiculture, it is commonly practiced only in the northern parts of the town. With its low costs and high economic yields, apiculture is one of the most profitable sectors in Güdül. However, local beekeepers complain about the racial hybridization in bee colonies provided as part of state incentives (Anonymous, 2017).

Kirmir Stream in the area has potential for fishery with its populations of carp, sheatfish, and local freshwater fish. However, the three dams built on Kirmir polluted the water, thus damaging the fisheries (Anonymous, 2017).

Detached houses with yards are common in Güdül, and most households raise poultry in their yards. On the one hand, amateur poultry farmers sell their products in local markets as a way to earn an additional income. On the other hand, there are two households who are professional poultry farmers and these businesses receive state support. One of the chicken farms is located in Garipçe Neighborhood while the other one is on Beypazarı road. Both farms operate with a capacity of 50000 (Anonymous, 2017).

Although cattle farming is done primarily in Garipçe, Karacaören, Çağ and Güneyce neighborhoods, there's a significant decrease in recent years due several factors that negatively affect husbandry. For example, the area of grazing land has significantly decreased when pastures were turned into forests. Secondly, after the enactment of the law that turned village settlements into neighborhoods of the metropolitan, local people who had barns adjacent to their houses received complaints from their neighbors due to the foul smell and noise coming from the barns. Barns, thus, had to be moved away from residential areas, which increased costs. Thirdly, a necessity to purchase hay and fodder arose because of the decreasing production. Also, the drop in profit rates and lack of employment areas led the young population to immigrate to the city, which negatively affected husbandry (Anonymous, 2017).

Angora goat holds a significant place in small cattle farming, and angora wool is known to have brought a substantial revenue to the region's and the country's economy in the past. However, fiber and imported leather, the products of mechanization in recent years, brought about a dramatic decrease in the production of angora wool on account of low costs and sufficient functionality. Diminishing demands parallel to the decrease in population also caused a decline in production. Thus, Güdül has lost the importance it previously attached to the production of angora wool (Anonymous, 2017). Güdül Angora Wool and Fleece Agricultural Sales Cooperative supports the production in the town (Kaplan, 2007).

Although the location of the town on a branch of the Silk Road was a pioneering factor in commercial activities, heavy immigration out of Güdül decreased the production rates and commercial activities. Angora wool and leather factories had production of shoes and especially "mest"

shoes (a kind of soft footwear) in the past, but the production cannot keep pace with today's competitive environment and is facing extinction. Instead of selling their own products, existing factories sell products purchased from places like Beypazarı and Konya due to lower costs. It is also known that there is a great number people from Gdl who are engaged in trade in Ankara, especially in Ulus region (Kaplan, 2007).

There are not any specialized or organized and large-scale industrial zones within the borders of Gdl. Such an industrial zone focusing on leather production with the purpose of using the existing potential in town was considered in the past; however, this tentative plan was never realized nor put on agenda again due to the gradual decline in husbandry. The decrease in population in recent years stands as the biggest obstacle in front of the possibility of opening a new industrial zone and creating an employment potential. Commercial activities currently continue in small-scale industrial zones and factories (Anonymous, 2017).

The number of roasted chickpea and leather factories, which became symbols of Gdl in the past, has significantly dropped as well. About 20 years ago, there were 50 factories producing roasted chickpeas and 35 shops producing leather. Today we can find only 1 manufacturer of roasted chickpeas (İsmail-Cengiz Altındağ Brothers) and 2 leather factories. The growth in the production of roasted chickpeas due to mechanization has restricted traditional production by causing a decrease in production costs on a company basis.

The production of roasted chickpeas stayed alive for a while for the sake of preserving the tradition, but it also eventually lost its attraction. The drop in sales rate dragged the manufacturers of roasted chickpeas into an economic distress. Also, manufacturers are having trouble finding people to train because of youth migration. A project has been launched in order to revive this former symbol of Gdl. Accordingly, a Street of Roasted Chickpea Manufacturers is designed in a protected urban area with adjacent one-floor stores with wooden fronts. The objective of this project, carried out in collaboration with Gdl Municipality and Gdl District Governorship, is to ascribe a new function to simple but authentic and traditional wooden fronts (Anonymous, 2017; Kaplan, 2007).

Knife-making, a sector in Gdl dating back to 5 years ago, offers diversification in the economy of the town. Besides being a product of hard labor and great efforts, knives made in Gdl also reflect our cultural past. The motifs and designs used in the Ottoman Empire are today meticulously carved on knives and presented to the aficionado. The production takes place in one store (Erdal Atasoy) and sale in three stores, one of which also offers online sale options. This local craft is promoted in fairs at specific times of year. People living in Turkey who are also interested in the craft of knife-making visit the town of Gdl to see and purchase these knives (Anonymous, 2017).

Unemployment proves to be an important problem for Gdl. The young people of Gdl try to find employment in neighboring cities, Ankara being in the first place, due to the inadequacy of work areas and

employment opportunities in town. Despite the efforts to keep them alive, economic sectors such husbandry, production of roasted chickpeas, and the leather trade do not yield expected profits and are interrupted by various factors, which is among the major causes of unemployment. New and diverse fields of employment are needed in order to revitalize the economy. A number of factors show Güdül's suitability to host new areas of employment. First of all, it is located close to the capital of Turkey, Ankara, a physical, social, and governmental point of connection. Also, the town still maintains its rural characteristics and possesses the potential to create diversity in rural economy thanks to rural values. Considering its history, geography and fertile lands, the scarcity of employment constitutes a significant problem (Anonymous, 2017).

DATA AND METHOD

Data

Surveys conducted with the local people of Güdül, local administrators, and experts constitute the main data source of this research.

Local people are those who have an established and permanent settlement largely in Güdül. They reside in Güdül, use the town's resources, and contribute to town's economy. In brief, locals are people who experience Güdül the most and who are most likely to be affected by the administrative decisions.

Experts are the people who are directly or indirectly engaged in the guidance and development of Güdül's rural development plans, and also technical staff working in institutions such as Güdül Agricultural Directorate, Güdül Forest Directorate, Güdül District Governorship, and Güdül Municipality.

Local administrators include the administrative staff working in local government units and managements (municipality, district governorship, local heads of neighborhoods, organizations etc.) in the town of Güdül.

While defining the physical, social, economic, and governmental structure of the study site, we utilized;

- The analyses conducted by Ankara Metropolitan Municipality and Güdül Municipality regarding the site, and Google Earth satellite images for maps and plans,
- Microsoft Excel for data digitization and analyses;
- Adobe Photoshop (CC) for the production of thematic maps and visuals;
- Research Report on Town of Güdül (2017), Güdül District Governorship (2019), and Güdül Municipality (2019) for institutional reports and data;
- And lastly observations made and photographs taken in the study site.

Method

Saaty and Vargas (2001) stated that the Analytic Hierarchy Process (AHP), first put forward by Myers and Alpert in 1968, allows for the assessment of both quantitative and qualitative factors. Kurtilla et al. (2000) delineated the general framework in the strategic decision-making process by SWOT analysis, and added that AHP confers a rational, analytical, and quantitative aspect to this qualitative framework. Lee et al. (2006) combined the balanced scorecard approach with a fuzzy AHP method in performance assessment. Kangas et al. (2003) used this method with the purpose of identifying the protection strategies in forests, which are sensitive ecosystems. In a similar manner, Masozera et al. (2004) evaluated the impact of local communities in the Forest Protection area, the institution of the state, and environmental groups on plans or strategies in a community-based governance model. This method was used by Cengiz & Çelem (2005) (in the strategy-making process in rural areas; by Çelik & Murat (2008) in the assessment of city of Bartın's economic structure; by Akbulak (2016) and Yılmaz & Zorlu (2018) in the strategy-development process regarding the tourism activities in rural areas.

This study aims at assessing the economic activities and demands that are planned as part of rural development plans in Gdl and identifying the proper planning strategies. The most suitable strategy is determined by the Analytic Hierarchy Process (AHP) method.

The flowchart of the research is presented in Figure 2:

In this study, stakeholders are subsumed under three groups as local people, experts, and local administrators. Local people are those who have an established, permanent settlement largely in Gdl. They reside in Gdl, use the town's resources, and contribute to town's economy. In brief, locals are people who experience Gdl the most and who are most likely to be affected by the administrative decisions. Experts are people who are directly or indirectly engaged in the guidance and development of Gdl's rural development plans, and also technical staff working in institutions such as Gdl Agricultural Directorate, Gdl Forest Directorate, Gdl District Governorship, and Gdl Municipality. Local administrators include the administrative staff working in local government units and managements (municipality, district governorship, local heads of neighborhoods, organizations etc.) in the town of Gdl.

In the design process of the survey, in addition to observations as part of the field work, informal face-to-face meetings with the local people, interviews with the experts holding positions or doing research in the region, and meetings with the local administrators who were integral to local development activities were held. Furthermore, surveys that were implemented in similar studies using the SWOT-AHP integrated method were consulted. The feedback received from different interaction groups who experience and endeavor to maintain the local texture not only

shaped the survey in such a way as to test the pulse of the local, but also brought an authenticity to the survey.



Figure 2. Methods (Drawings by the Authors).

During the organization of these surveys in terms of content and scope, national and international literature on the subject was reviewed, the work of Güdül urban craft workshops was resorted to, and the experts were consulted. In accordance with the expert opinion, the options that were deemed to be unnecessary and low in measuring power were eliminated from the first draft of the survey. Pilot studies were conducted with local shopkeepers with the aim of doing a pre-assessment of the survey questions and evaluating the perception of stakeholder groups. Items that were found to be confusing and hard to understand were removed from the surveys.

The survey was conducted at Güdül town center. Various difficulties were encountered in the application of survey forms in line with the combined SWOT-AHP method. Among the major problems are the scarcity of the response from local administrators due to their desire to be impartial and the unwillingness of local people to give valid answers due to finding the survey questions too long or unintelligible.

In order to assure the efficacy of the local participation mechanisms, in depth face-to-face and over-the-phone surveys were conducted with the above-mentioned stakeholders (local people, experts, and local administrators) regarding the current situation. As a result of these surveys, strengths, weakness, opportunities, and threats with regards to the town of Gdl were identified through a participatory approach, and a SWOT analysis was prepared that takes into consideration the economic factors in rural development.

Two types of surveys were prepared to be delivered to three groups of stakeholders who are also decision-makers. One of these surveys targets local people and the other one is for experts and local administrators. During the organization of these surveys in terms of content and scope, National and international literature on the subject was reviewed, the work of Gdl urban craft workshops was resorted to, and the experts were consulted. In accordance with the expert opinion, survey forms were created that included the assessment of factors in relation to one another and the identification of the priority values (1-9 scale). These surveys proved to be quite useful in the creation of weighted SWOT factors and identification of priority values. Pilot studies were conducted with local shopkeepers with the aim of doing a pre-assessment of the survey questions and evaluating the perception of stakeholder groups. Items that were found to be confusing and hard to understand were removed from the surveys.

In this study, while taking into consideration the preferences of stakeholders, an integrated SWOT-AHP approach is used in the designation of the strategies to identify the most suitable economic activity essential for rural development in town and in ranking these strategies in order of importance. The objective of the SWOT analysis, which is considered to be a tool of analysis and planning, is to approach the current situation from multiple perspectives and to set a course of action for future use. There are several studies combining SWOT analysis and the AHP method in various fields such as economy, energy policies, resource management, healthcare, architecture, engineering, and tourism. The relative importance of the factors identified through AHP and the importance of groups these factors belong to are designated, and effective solution suggestions are generated within the framework of a multi-criteria decision-making process. Decision-makers identify the factors and the relative priority value of each factor in their group within the framework of the hierarchical structure that is established on the identified axes. Then they score the factors within the scope of the values and definitions presented in Table 1. This scoring results in a matrix of paired comparison. As a result of the eigenvalue and eigenvector calculations on this matrix, the weight of the SWOT group and factors are calculated (Akbulak, 2016).

Table 1. AHP rating scale (Saaty, 2008)

Numerical Scales	Description of Importance	Explanation
1	equal importance	two factors equally contribute to one objective
3	moderate importance of one factor over another	experience and personal appreciation slightly favor one factor over another
5	strong importance of one factor over another	experience and personal appreciation highly favor one factor over another
7	very strong or demonstrated importance	one factor is strongly favored and its dominance is supported in practice
9	extreme importance	evidence favoring one factor over another is of the highest possible order of affirmation
2,4,6,8	intermediate values between two scales	when a compromise is required

First, the weight scores of SWOT groups and factors were determined by taking into consideration the economic aspects of rural development and with the aid of the AHP method explained above. Then the general weight score of SWOT factors is calculated by multiplying the score of each SWOT factor with the weight score of the SWOT group to which the factor belongs. The general weight scores of all SWOT factors were thus obtained and, as a result, qualitative SWOT factors were quantified through the method of AHP.

Identification of economic development strategies: At this stage of the study, strategies oriented towards assuring the economic development in Güdül were determined. While the general weights of SWOT factors were taken into account in the identification of strategies, other objectives included bolstering the already strong aspects of Güdül's economy, eliminating its weaknesses and threats, and making use of the opportunities.

Local people, who live in the region and are directly affected by the strategies, determine the priority values of the strategies that would support the development in the application of the integrated model of SWOT-AHP. Thus, participation and incentivization mechanisms involved in the rural economic development plans will be improved while transparent and fair participation mechanisms will be devised for disadvantaged groups. In addition to the direct participation of local people in the process, an economic development that aligns with the characteristic structure of the region and that supports rural economic diversity will be ensured in accordance with the objective of satisfying the primary needs of people and enhancing the quality of life.

Incorporation of local people's immediate needs in the policies and implementations that are generated within the framework of rural economic development also supports the direct participation of people in this process.

FINDINGS

The size of the sample population for surveys was determined. Where population size is 10,000 and more, the following formulations were used to determine the sample size (Aksoy & Elmacı, 2009).

Table 2. Sample area size determination (Aksoy & Elmacı, 2009)

$$n = \frac{\sigma^2 \cdot Z_{\alpha}^2}{d^2} \qquad n = \frac{P \cdot Q \cdot Z_{\alpha}^2}{d^2}$$

n	Sample Size
P	Probability of observing X in the population (0.5)
Q (1-P)	Probability of not observing X in the population(0.5)
σ	Standard Deviation for the population = P. Q
Z _a	1.96 for a=0.05
d	Sampling error (0.05)

At α=0.05, in Gdl where the population size (N) is 10,074 with an ± 0.05 sampling error, area sampling size of the questionnaire to be delivered to the local people is determined to be 38, without the margin of error. When the margin of error is also included, the necessary number of questionnaires is estimated to be at least 40. Within the study site, 35, 12, and 3 questionnaires were administered to local people, experts, and local administrators, respectively. The purpose of the questionnaires is to reveal Gdl's current potential and expectations in an objective, transparent, and fair manner. To that end, a homogenous distribution of Gdl's general frame was intended to be achieved in the questionnaires with regards to factors such as age, gender, economic status, and education (Table 2).

A number of factors received special attention in the delivery of surveys. It was made sure that the targeted local people were adults living within the town boundaries of Gdl. Secondly, experts were selected from a variety of different professions such as state officials, accountants, city planners, architects, sociologists, economists, and engineers and so forth (Table 3). Lastly, district governorship staff and the local head of the neighborhood were given the surveys in person-person.

Table 3. Gdl expert surveys professional group and number of surveys applied

Occupational Group	Number of Surveys	%
Technician	2	16,66
Civil Servant	3	25
Accountant	2	16,66

City Planner	1	8,33
Architect	1	8,33
Sociologist	1	8,33
Economist	1	8,33
Engineer	1	8,33
Total	12	100

According to the Economic SWOT analysis of the town of Gūdūl, a total of 29 factors were identified: 8 factors in the strengths group, 9 in the weaknesses group, 4 in the opportunities group, and lastly 8 in the threats group (Table 4).

Table 4. Gūdūl economic SWOT analysis from (Sahin & Gūdūz, 2018) prepared by compiling

Economic Strengths (ES)	Economic Weaknesses (EW)
ES1- Local people's main sources of income are agriculture and animal husbandry	EW1- Seed amelioration efforts are insufficient
ES2- Geothermal resource potential can be utilized in agriculture and tourism	EW2- Cattle farming is in decline
ES3- Trade and recreational activities in the region are revived due to the waterfront arrangement along Kirmir Stream	EW3- Households with low number of animals are incurring higher costs for animal care and their profits rates are decreasing
ES4- Geographical structure is suitable for the launching of new employment areas	EW4- The number of unemployed people is on the rise and there are not adequate fields to provide employment for these people
ES5- Angora wool trade occupies a significant place in the traditional structure	EW5- The town does not own a developed industry sector
ES6- Local people are occupied with apiculture, fishing, and poultry farming	EW6- Production of hay and fodder required for animal husbandry is not sufficient
ES7- Amateur poultry farmers contribute to economy by selling their products in local markets and mobile sales stands	EW7- There are no food safety efforts and studies
ES8- Recreational activities are introduced on a designated street to revive the traditional manufacturing techniques of roasted chickpeas	EW8- Cooperativization infrastructure is insufficient
	EW9- Infrastructure for competitiveness and branding is insufficient
Economic Opportunities (EO)	Economic Threats (ET)
EO1- Angora goat is native to Ankara	ET1- The production of angora wool, which indeed has high economic return on the national and regional levels, has significantly dropped
EO2- Angora wool significantly contributes to the national and regional economy	ET2- The number of roasted chickpea and leather factories, which became symbols of Gūdūl in the past, has significantly dropped
EO3- Roasted chickpea, an important product of the region, has branding potential	ET3- Touristic areas with high branding value cannot be integrated with Gūdūl
EO4- The town has potential in various fields to get a foothold in domestic and foreign markets	ET4- Natural resources in rural residential areas cannot be integrated into tourism and the investments in agritourism are insufficient
EO5- Viticulture activities are improving and gaining importance	ET5- Although Ankara lies at the center of Turkey and the Middle East in the health sector, this potential cannot be integrated with the tourism sector
EO6- Kirmir Stream is suitable for fishing activities	
EO7- People visit Gūdūl to see and purchase the knives made in town	

ET6- The importance of the utilization and accrue­ment of agriculture-based capital has been lost due to town’s proximity to Ankara
ET7- Businesses have insufficient institutional capacity for branding and foreign trade
ET8- Tourism sector cannot make a significant contribution to economy due to the shortage in accommodation facilities in the area

Weighted scores of the economic SWOT group and SWOT factors were assigned using the AHP method and in consideration of the factors that impact the improvement of the economic structure. The scores of the economic SWOT group and SWOT factors were primarily identified, and then the general weight score of each factor was calculated. Then the economic SWOT groups, scored by the local people, experts, and local administrators, are analyzed from the viewpoint of the three stakeholders (Table 5):

Table 5. Weightiness of economic SWOT factors

SWOT Group	Importance of the SWOT Group			SWOT Factors	Importance of Factors within Group			General Importance of Factors		
	Local People	Experts	Local Administrators		Local People	Experts	Local Administrators	Local People	Experts	Local Administrators
ES	0.252	0.252	0.250	ES1	0.133	0.139	0.102	0.033	0.035	0.025
				ES2	0.121	0.154	0.153	0.030	0.039	0.038
				ES3	0.145	0.166	0.159	0.037	0.042	0.040
				ES4	0.143	0.119	0.159	0.036	0.030	0.040
				ES5	0.113	0.109	0.064	0.029	0.027	0.016
				ES6	0.095	0.068	0.070	0.024	0.017	0.018
				ES7	0.142	0.144	0.127	0.036	0.036	0.032
				ES8	0.107	0.100	0.166	0.027	0.025	0.041
EW	0.295	0.286	0.200	EW1	0.144	0.129	0.166	0.043	0.037	0.033
				EW2	0.081	0.098	0.066	0.024	0.028	0.013
				EW3	0.089	0.097	0.053	0.026	0.028	0.011
				EW4	0.121	0.126	0.159	0.036	0.036	0.032
				EW5	0.120	0.119	0.132	0.035	0.034	0.026

				EW6	0.085	0.060	0.025	0.024	0.012
				EW7	0.088	0.093	0.026	0.029	0.019
				EW8	0.148	0.132	0.159	0.044	0.032
				EW9	0.124	0.113	0.113	0.037	0.023
				E01	0.115	0.098	0.084	0.027	0.026
				E02	0.115	0.149	0.076	0.027	0.024
				E03	0.162	0.159	0.183	0.038	0.057
				E04	0.161	0.175	0.191	0.037	0.060
				E05	0.152	0.183	0.206	0.035	0.039
				E06	0.153	0.106	0.107	0.035	0.033
				E07	0.143	0.129	0.153	0.033	0.048
				ET1	0.116	0.120	0.097	0.026	0.023
				ET2	0.136	0.098	0.109	0.030	0.026
				ET3	0.141	0.149	0.154	0.031	0.038
				ET4	0.135	0.134	0.149	0.030	0.035
				ET5	0.093	0.134	0.154	0.021	0.037
				ET6	0.131	0.149	0.114	0.029	0.038
				ET7	0.147	0.130	0.109	0.033	0.026
				ET8	0.100	0.087	0.114	0.022	0.027
EO	0.231	0.210	0.313						
ET	0.222	0.252	0.238						

Local people rated the group of “economic weaknesses” as the most important group with a priority value of 0.295 (29.5%) and “economic threats” as the least important group with a value of 0.222 (22.2%). When we look at the significance of economic SWOT factors within the group, it can be observed that ES3 from the group of economic strengths (14.5%), EW8 from the group of economic weaknesses (14.8%), E03 from the group of economic opportunities (16.2), and lastly ET7 from the group of economic threats (14.7) occupy the first places in terms of significance within their respective groups (Figure 3). When the general weights of the factors are analyzed, it is seen that EW8 (4.4%), EW1 (4.3%) from the economic weakness group and E03 (3.8%) from the economic opportunities group share the first three places.

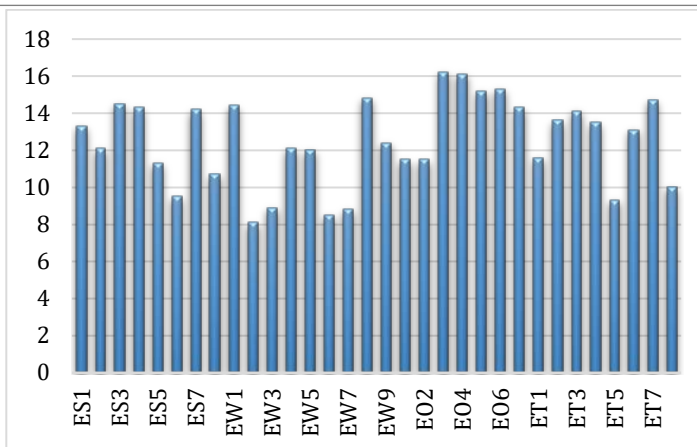


Figure 3. Evaluation of the importance levels of economic SWOT groups within the factor by the local people (%).

Experts identified the group of economic weaknesses as the most important group with a priority value of 0.286 (28.6%) and economic opportunities as the least important one with a priority value of 0.216 (21%). As for the importance of economic SWOT factors within groups, we can observe that ES3 (16.6%) in economic strengths, EW8 (13.2%) from economic weaknesses, EO5 (18.3%) from economic opportunities, and ET3 (14.9%) and ET6 (14.9%) from economic threats groups occupy the first place in terms of significance within their respective groups (Figure 5). In terms of the general weights of the factors, it can be seen that ES3 (4.2%); ES2 (3.9%) and EO5 (3.9%); and ET3 (3.8%) and ET6 (3.8%) share the top three places (Figure 6).

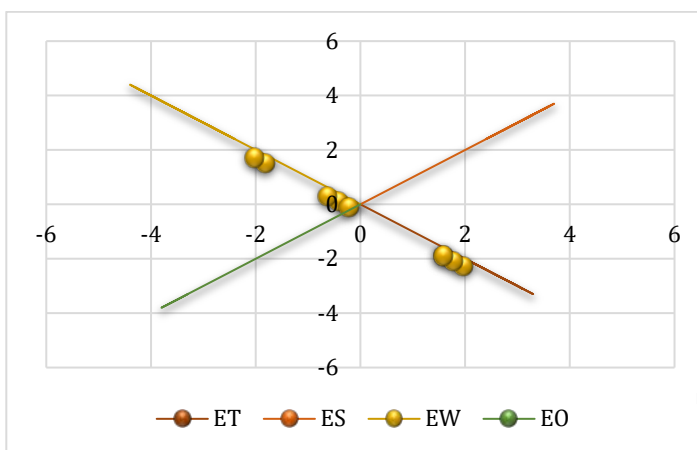


Figure 4. Evaluation of general importance levels of economic SWOT analysis factors by local people (%) within the factor by the local people (%).

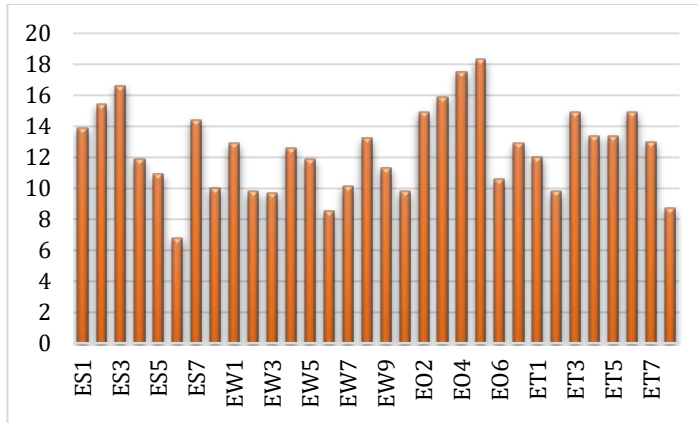


Figure 5. Evaluation of the importance levels of economic SWOT groups within the factor by experts (%).

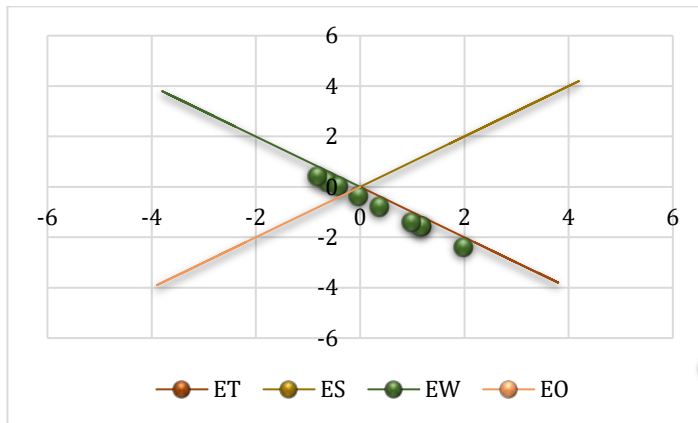


Figure 6. Evaluation of general severity degrees of economic SWOT analysis factors by experts (%).

Lastly, local administrators rated the group of economic opportunities as the most important group with a priority value of 0.313 (31.3%) and economic weaknesses as the least important group with a value of 0.200 (20%). When we look at the significance of economic SWOT factors within the group, it can be observed that ES8 (16.6%) from the group of economic strengths, EW1 (16.6%) from the group of economic weaknesses, EO5 (20.6%), from the group of economic opportunities and lastly ET3 (14.7) and ET5 (15.4%) from the group of economic threats occupy the first places in terms of significance within their respective groups (Figure 7). In terms of the general weights of the factors, EO5 (6.4%), EO4 (6%), and EO3 (5.7%) from the group of economic opportunities share the top three places (Figure 8).

Figure 7. Evaluation of the importance levels of economic SWOT groups within the factor by local administrators (%).

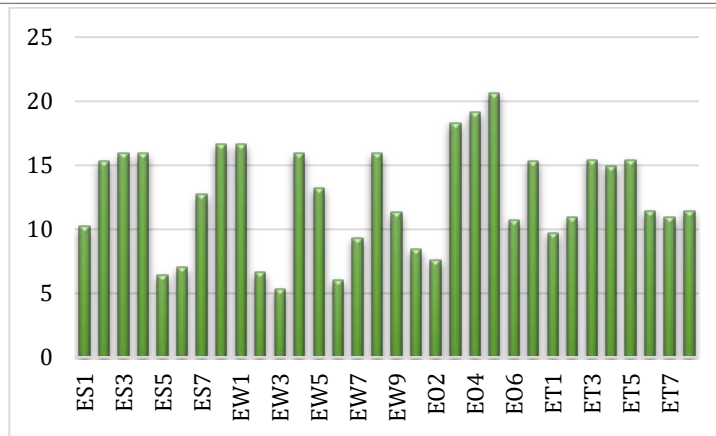
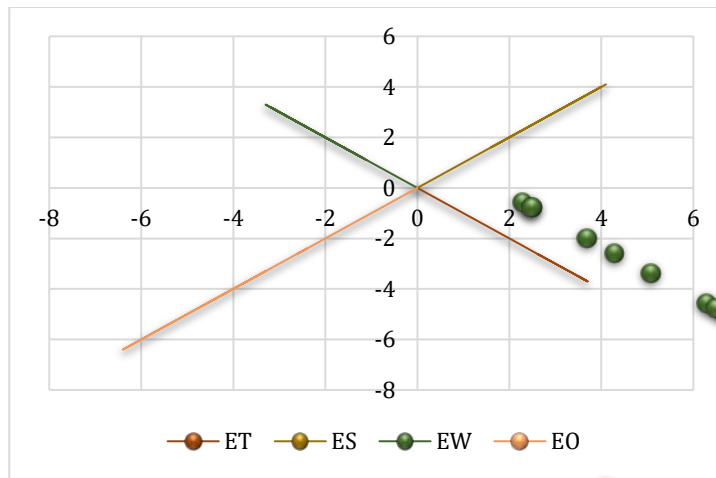
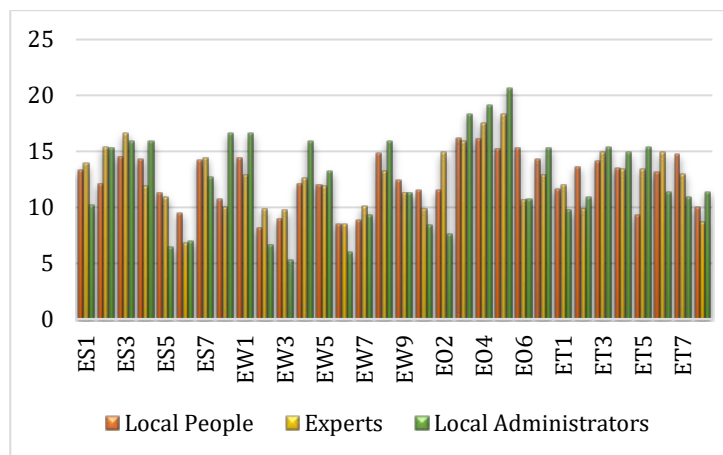


Figure 8. Evaluation of general importance degrees of economic SWOT analysis factors by local administrators (%).



When the priority levels of economic SWOT groups within factors are assessed by stakeholders, it transpired that local administrators attached the highest and the local people the lowest significance to economic SWOT groups (Figure 9).

Figure 9. Evaluation of the importance levels of economic SWOT groups within the factor according to stakeholder groups (%).



The importance given by stakeholders to SWOT groups has a foundational impact in the establishment of rural economic development plans of Gdl. When the priority levels that are identified by taking the

geometric mean of the economic SWOT analysis group weights are explored (Table 6 and Table 7):

Table 6. Comparison of significance levels of the economic SWOT group

SWOT Group	Local People	Experts	Local Administrators	Güdül Rural Economic Development Strategy
EGY	0.031	0.031	0.031	0.031
EZY	0.032	0.031	0.022	0.027
EF	0.033	0.030	0.044	0.035
ET	0.027	0.031	0.029	0.028

Table 7. Economic SWOT group effects of Güdül rural economic development strategy

SWOT	Local People	Experts	Local Administrators	Güdül Rural Economic Development Strategy
Economic	0.030	0.030	0.030	0.030 11.58%

Economic SWOT groups were equally valued by the three stakeholder groups. Within group, economic opportunities carry the highest weight identified by the local people. On the one hand, experts equally valued economic strengths, weaknesses, and threats and rated almost all the economic SWOT groups equally. On the other hand, economic opportunities carry the highest weight identified by the local administrators, which is higher than the rating of that of local people (Table 6). The economic SWOT group with the highest priority value in Güdül's rural development strategy is economic opportunities with 0.035 (3.5%) (Table 7). In the general evaluation conducted by taking the geometric mean of economic SWOT groups, economic group was identified as the fourth most valued SWOT group with a score of 11.58%. As for the general evaluation conducted by taking the geometric mean of the assessment of economic SWOT groups, economic group ranks as the fourth most valued SWOT group with a rating of 11.58% (Figure 10).

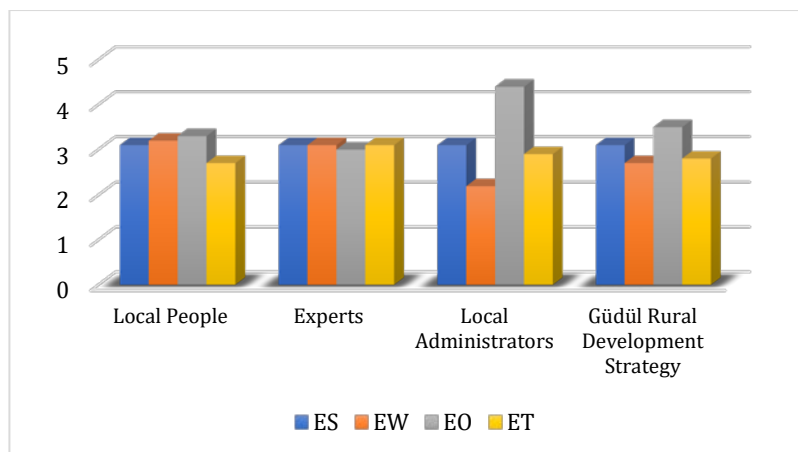


Figure 10. Economic SWOT group effects of Güdül rural economic development strategy.

Economic strategic objectives have been identified by using the TOWS matrix based on the logical coherence of Gdl's SWOT factors. TOWS matrix defines four conceptually-different strategic groups with a view to producing alternative strategies. These groups are,

- Strengths - Opportunities (SO):** Strategies to reinforce the strengths by using opportunities,
- Strengths - Threats (ST):** Strategies to reduce / eliminate the threats by using strengths,
- Weaknesses - Opportunities (WO):** Strategies to turn weaknesses into opportunities
- Weaknesses - Threats (WT):** Strategies to alleviate the weaknesses and threats (Seebohm, 2014).

The TOWS Matrix prepared for Gdl's strategic rural development model includes successful defensive strategies to lessen the effects of weaknesses (W) and to minimize the effects of threats (T). Also included in this matrix are Strategic Goals (SG) and sub-strategies under four groups, namely physical, social, economic, and administrative. These groups encapsulate the potentials arising from strengths (S) and opportunities (O) (Table 8). The SWOT factors primarily taken into account by the suggested Strategic Goals are presented in the chart below:

Table 8. Economic SWOT group effects of Gdl rural economic development strategy

Economic TOWS Matrix	Economic Strengths (ES)	Economic Weaknesses (EW)
Economic Opportunities (EO)	ESO Strategies	EWO Strategies
	<p>ESG 1: Improving Agricultural Economy and Increasing Employment Opportunities (ES1, ES4, ES7, EO1, EO2, EO3, EO4, EO6)</p>	<p>ESG 2: Developing Competitiveness and Marketing Infrastructure ESG 3: Supporting Food Security Efforts ESG 4: Developing Rural Industry Infrastructure ESG 5: Assuring the Diversity of Local Products ESG 6: Reinforcing the Cooperativization Infrastructure (EW1, EW2, EW3, EW4, EW5, EW6, EW7, EW8, EW9, EO1, EO2, EO3, EO4, EO5, EO6, EO7)</p>
Economic Threats (ET)	EST Strategies	EWT Strategies
	<p>ESG 7: Bolstering the Rural Tourism Infrastructure ESG 8: Increasing the Potential for Added Value and Branding (OS2, OS3, OS9, OT1, OT3, OT4)</p>	<p>ESG 9: Increasing the Capacity of Animal Husbandry ESG 10: Increasing Institutional Capacity (OW1, OW7, OW9, OT1, OT4)</p>

Economic Strategic Goals (ESG)

ESG 1: Improving Agricultural Economy and Increasing Employment Opportunities;

(ESG 1.1) Making the agriculture and food sectors more competitive,

(ESG 1.2) Promoting small and medium-scale family businesses in order to ensure the sustainability of vineyards and fruit orchards in town.

(ESG 1.3) Promoting modern agriculture methods such as urban agriculture and hobby farms in order to protect the qualities of the vineyards and fruit orchards in town.

(ESG 1.4) Establishing farmer's markets for the foundation of a local market.

ESG 2: Developing Competitiveness and Marketing Infrastructure;

(ESG 2.1) Raising awareness among producers regarding the cultivation of marketable products with high relative profit rates.

(ESG 2.2) Launching planning efforts regarding the variety and minimum quantity of products and also standard production with the purpose of increasing the marketability of agricultural products.

(ESG 2.3) Planning and implementing support mechanisms regarding the products that are intended to be cultivated in the region.

(ESG 2.4) Establishing support mechanisms for agricultural production associations and farmers to expand the international sales volume.

(ESG 2.5) Assisting with the projects that aim reinforcing the region's infrastructure of supply channels and distribution of products.

(ESG 2.6) Establishing buying centers and product stock markets for the sale of products with added value.

(ESG 2.7) Upgrading the town's website and using it for communication and marketing and promotion local products.

ESG 3: Supporting Food Security Efforts;

(ESG 3.1) Establishing control and inspection mechanisms for food security.

(ESG 3.2) Working towards raising awareness about food security in producers and consumers.

ESG 4: Developing Rural Industry Infrastructure;

(ESG 4.1) Founding an Agriculture-based Organized Industrial Zone.

(ESG 4.2) Increasing the potential for animal husbandry and supporting the farms founded away from residential areas in order to avoid disturbing the local people with the foul smell coming from barns.

(ESG 4.3) Developing the necessary industrial infrastructure for the production of angora wool which is native to Ankara and makes a significant contribution to local and regional economy.

(ESG 4.4) Improving the fodder and hay production facilities to be used in animal husbandry.

ESG 5: Assuring the Diversity of Local Products;

(ESG 5.1) Improving the seed policies in order to assure the sustainability of the diversity of local products.

(ESG 5.2) Establishing seed-producing cooperatives to make local seeds more accessible and to promote the production of seeds.

(ESG 5.3) Founding seed banks to collect and preserve organic and durable seeds.

(ESG 5.4) Popularizing the production of saplings and seedlings.

ESG 6: Reinforcing the Cooperativization Infrastructure;

(ESG 6.1) Expanding the opportunities for cooperatives to do sale both in local markets and online.

(ESG 6.2) Increasing grant opportunities for cooperatives.

ESG 7: Bolstering the Rural Tourism Infrastructure;

(ESG 7.1) Integrating the natural resources located in rural residential areas and the areas with high brand value (Kirmir Stream, Sorgun Pond, İnn Caves etc.) into the tourism activities in the region within the framework of rural tourism projects.

(ESG 7.2) Using the advantages of Ankara's position as the center of Turkey's and the Middle East 's health sectors in order to integrate Gdl's geothermal tourism potential (e.g., aęa region) into health tourism.

(ESG 7.3) Making up for the shortage in accommodation facilities and making improvements in this sector due to the fact that tourism sector does not make a significant contribution to local economy.

(ESG 7.4) Promoting farm tourism activities especially in vineyard houses, where one can spend weekends, and rural residential places.

(ESG 7.5) Presenting the town's agricultural production and the diversity in products in short educational courses delivered to domestic and international tourists interested in agritourism, and integrating this project with the tourism infrastructure.

(ESG 7.6) Making the grape production in the town's vineyards compatible with wine tourism and creating wine-tasting tours for domestic and international tourists.

(ESG 7.7) Developing gastronomy tourism in rural residential areas.

(ESG 7.8) Generating creative tourism ideas to develop knife-making industry.

ESG 8: Increasing the Potential for Added Value and Branding;

(ESG 8.1) Supporting the production of roasted chickpeas, which carry the potential for branding, and creating sale mechanisms.

(ESG 8.2) Improving the promotion mechanisms for angora wool, which carries the potential for branding and contributing to local and regional economy.

(ESG 8.3) Utilizing the potentials of products that could provide added value to town's economy.

ESG 9: Increasing the Capacity of Animal Husbandry;

(ESG 9.1) Urging the production of organic fodder crops in pastures that carry the potential for organic production so as to eliminate the deficit in fodder availability observed in organic animal husbandry.

(ESG 9.2) Founding of grazing administration associations.

(ESG 9.3) Promoting the amelioration of pastures that are located in areas facing the pressure of urban development.

(ESG 9.4) Forming support mechanisms by increasing the numbers of cattle, small cattle, and poultry.

(ESG 9.5) Designing incentive mechanisms for the cultivation of angora goat.

(ESG 9.6) Raising awareness among local people regarding the state support, such as bee and hive support, that aims at increasing the potential of apiculture.

(ESG 9.7) Taking precautions against the damage inflicted on fisheries and the pollution caused by the fishing activities in Kirmir Stream.

ESG 10: Increasing Institutional Capacity;

(ESG 10.1) Leading research and development efforts in order to increase institutional capacity with the purpose of enhancing the capacity of branding and international trade.

DISCUSSION AND RESULTS

There are several factors that enhance the chances of success in rural development. Among these are: clearly demarcating the boundaries of the changing texture of rural areas and interaction areas; determining rural development policies and strategies that could help the utilization of the potential of rural areas effectively and productively and minimization of the negative factors that impede or slow down the improvement; identifying the stakeholders who directly affect and are affected by the rural development process; ensuring the active participation of disadvantaged groups in the process; identifying the needs and demands of the said stakeholders through participatory approaches in order to increase the livability and sustainability of rural areas; developing governance and participation mechanisms towards the improvement of rural development and organizational capacities; conducting the analyses of the current situation to determine the strengths, weaknesses, threats, and opportunities regarding the rural

area and quantifying the results; designating a transparent, fair, and sustainable rural development vision within the framework delineated by the stakeholders in the rural area; and creating strategies within the scope of this vision and preparing action plans. The method used in this study is an important step in overcoming the difficulties in determining the policies of the district and determining the priority values of these policies in the process of decision making for the quality life desire of the locals that affect and are affected by the rural area.

The results of the study contribute to planning efforts not only in theoretical perspectives but also in the implementation, policy-development, and auditing stages. It is believed that the results will provide the experts and authorities with significant data regarding the planning efforts in the strategic rural development, and the resulting model proposal can be applied to other rural areas in Turkey that are trying to maintain their rural characteristics at the periphery of metropolitan municipalities.

The town of Gdl possesses high potential to become one of the tourist attraction areas due to its proximity to a metropolitan city, which is also Turkey's capital, when necessary steps are taken in the way of rural development projects. The leading factors impeding rural development in town are shortages in employment areas and labor force. The respective needs for a population to preserve the rural texture, for the existence of agricultural production to bring added value to economy, and for employment areas to uphold rural economy are among the most important obstacles in front of Gdl's rural development.

The current situation of Gdl's rural development, its potentials, and non-negligible weaknesses have been identified through an economic SWOT analysis of the area. During the process of designing a rural economic development strategy for the town of Gdl, the current situation and the general framework were delineated by a SWOT analysis, a quantified method. Secondly, the resulting economic SWOT group and the priority values of the SWOT factors subsumed under this group were identified and prioritized by using the AHP method.

The most important problem of agricultural production in Gdl is considered to be the inadequacy of irrigation areas and water supply. Especially after the enactment of the law that turned villages into neighborhoods, charging for water use started, which increased the costs. The downward tendency in the number of animals and animal production picked up speed with the changing legal processes. Moving the barns away from residential areas in urban neighborhoods on account of foul smell significantly increased costs. Also, because the absence of Organized Industrial Zones based on agriculture and animal husbandry decreases the revenue that could be generated from these sectors, farming livelihood is no longer considered as an option. Animal and agricultural products are sold under market value due to the deficiencies in marketing infrastructure, and lack of production and sales

organizations for products that could bring added-value restrict the overall production.

Within the framework of this vision, a TOWS matrix that is based on the integration of SWOT factors and also physical, social, economic, and administrative strategic objectives for Güdül were generated in consideration of the strategies developed for Güdül's rural development. Then, in order to implement the strategic objectives and to complete Güdül's rural development process, action plans were created to identify the institutions responsible for the strategies.

A number of economic strategies have been developed in order for the rural economy to provide added value. These include:

- Improving agricultural economy and increasing employment opportunities,
- Developing the infrastructure for competitiveness and marketing
- Supporting food security efforts,
- Developing the rural industrial infrastructure,
- Assuring diversity in local products,
- Reinforcing the cooperativization infrastructure,
- Reinforcing the rural tourism infrastructure
- Increasing the potential for added-value and branding,
- Enhancing the capacity for animal husbandry,
- Increasing institutional capacity.

When we examine the studies planned in the scope of this research and the recommendations for the experts, researchers, and practitioners who are interested in this subject, we see that identification of in-group weights and the general weights for the quantification of the SWOT factors with the AHP method that involves a transparent participation process could ensure prioritization of needs and expectations, in addition to providing the groundwork for specifying a rural development vision and a rural development plan that is feasible and sustainable in the course of AHP. Additionally, this approach promotes discovering actual problems and rational approaches to find out solutions. This advantage, in turn, satisfies expectations and leads to a decrease in emigration rates by increasing the life quality and happiness levels of stakeholders, who are affected by the process of rural development. When rural development studies follow priority plans, they contribute to sustaining local identities and achieving the targeted success rates.

The results of this study show that combining SWOT analysis and AHP method is an effective and useful way to identify the economic strategies of rural development. On the one hand, SWOT analysis revealed the economic strengths and weaknesses Güdül's economy as well as the threats and opportunities it can encounter. On the other, AHP method was utilized in the identification of priorities while developing strategies regarding the SWOT factors.

Thus, SWOT analysis, a qualitative method, has acquired a quantitative aspect with the help of AHP and factors with the highest scores in the development of strategies were prioritized and weighted. In this respect,

this study could provide a model for similar studies that focus on rural development from various perspectives (socio-cultural, physical environment etc.)

Also, it is our expectation that consideration of the strategies put forward in this study by local administrators and decision-makers would significantly contribute to the proper utilization of the economic rural development potential of Gdl.

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CONFLICT OF INTEREST

There was no conflict of interest.

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The authors declared that this study has received no financial support.

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Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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Urban Identity: A Proposad Method for Evaluating the Conservation of Historical Urban Environments

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Abstract

Purpose

Identity elements are the main determinants of urban perception and urban image. Evaluated in this sense, it is of great importance to create renewal and renovation works in the historical urban textures, which have had a unique character in the past and have survived to the present day, according to the ecological and socio-economic structure of the region. This study aims to evaluate the conservation and renovation works carried out in the urban protected areas in Gaziantep and Antakya based on the urban identity elements.

Design/Methodology/Approach

The urban identity elements to be evaluated in the study area were determined, and forms and charts were prepared to create these evaluations. Evaluation results based on 5-point Likert scale were weighted in accordance with expert opinions and conservation index maps were created based on the determined values and interpreted with the help of ArcGIS software. As a result of the quantitative evaluations, identity elements of the conservation activities and their effects on their environment were expressed with the help of maps

Findings

it has been determined that the value of the historical texture can be preserved by adopting the traditional fabric and faithful conservation works, moreover the additions and material changes have negative effects.

Research Limitations/Implications

In the study model was carried out in a narrow area, such as the Gaziantep and Antakya urban site area.

Social Implications

Uniform protection can be prevented by considering historical cities in a way that reflects their identity. Thus, it can be ensured that protection principles are determined according to the concepts of heritage and value and these values are passed on to future generations.

Originality/Value

Considering historical cities serve as cultural bridges, the article is important in terms of examining conservation in these cities.

Keywords: *Historical environment conservation, Urban identity, Gaziantep, Antakya*

INTRODUCTION

Identity is an expression that describes the individuality, uniqueness and authenticity of an object as well as being a feature that creates the status of being recognizable within other objects. Identity elements are the main determinants of urban perception and urban image (Lynch, 1960). Evaluated in this sense, the streets, squares, parks, open spaces, urban spaces, which have a great impact on social life, are expressed as areas where the citizens meet each other, fuse together, and create urban culture (Erdönmez & Akı, 2005). Therefore, the issue of preserving city identity, which forms the feelings of belonging and commitment in societies, gains more importance while keeping up with the globalizing world (Hergül & Sayın, 2017). In this sense, it would be wrong to evaluate cities only as a space of physical entity. Like every other entity, cities have a soul and an identity. This is one of the reasons why they have been exposed to socio-economic, ideological and political struggles over the years (Esendemir, 2015). Therefore, it is important to understand the necessity of continuity by considering this aspect of cities. As a result, they will gain continuity with the preservation of historical identity of the cities (Velioglu et al, 1993).

In this sense, many cities in the world have areas where identity and space add meaning through their historical and cultural relations. They are often an integral part of the city's image and culture (Tiesdell et al, 1996). The texture of historical cities depends not only on its physical structure, but also on various behaviours and activities, and offers a unique human identity (Dhingra et al, 2016). In short, historical urban areas are a part of the history and memory of cities, the basic elements of urban landscape and excellent representatives of the urban style. Especially when buildings are considered as a whole, they constitute historical character (Wang, 2011). Historical city centres are a texture formed by streets and buildings from different periods formed by various cultural and urban strata. For centuries they have formed the character of the city and now they show the quality of urban culture. The right urban preservation is to transform historical cities into cultural activity centres rather than into residential areas (Cohen, 1999).

The aim of this study is to determine the correctness of the debates about the loss of identity and culture in cities and their transformation into too similar cities without identity as a result of conservation works. This study aims to evaluate the conservation and renovation works carried out in the urban protected areas in Gaziantep and Antakya based on the urban identity elements and to determine their conservation status. Urban identity elements in the historical urban fabric of Gaziantep and Antakya, which constitute the study area, are examined in two groups as settlement and reinforcement scale. Scoring was made on the charts prepared for the purpose and their protection levels were determined. The values obtained were weighted according to expert opinions, protection index values were calculated and mapped.

METHODOLOGY

Research case

Antakya: The ancient city of Antakya was founded between the Asi River and the Habib-i Neccar Mountain at a height of 440 m. The city is located between the northern latitudes of $35^{\circ}-52'$ / $37^{\circ}-04'$ and the east longitudes of $35^{\circ}-40'$ / $36^{\circ}-35'$ and has a significant position within cities with a Turkish-Islamic character (Kara, 2005). Antakya, which has an important value for Jews, Muslims and Christians, has been under the rule of different civilizations in the historical process and this has led to an increase in the diversity of religion and culture there. It is seen that the religious structures constructed very close to each other contribute to the identity of the city by factors such as material, form, size and structure section with their own unique styles.

Gaziantep: Gaziantep is located between $36^{\circ} 28'$ and $38^{\circ} 01'$ east longitudes and $36^{\circ} 38'$ and $37^{\circ} 32'$ north latitudes. The total surface area of the province is 6745 km^2 and it is surrounded by Kahramanmaraş in the north, Adıyaman in the northeast, Kilis and Syria in the south, Hatay in the southwest and Şanlıurfa in the east (TMMOB, 2009).

1/1000 scale Antakya and Gaziantep Protected Areas in the Urban Development Plan was selected as the study area. The location of the urban protected area is given in Figure 1.

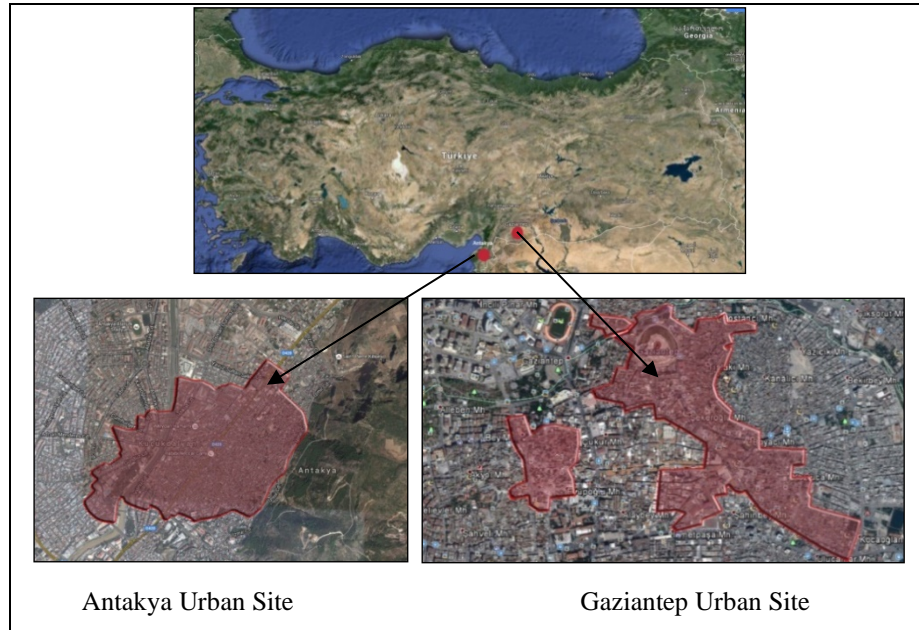


Figure 1. Figure 1. Locations of Urban Sites (Taşçıoğlu, 2018)

Analytical Framework

The study utilizes;

Antakya and Gaziantep Master Plans, 1/1000 scale Antioch and Gaziantep Current and Conservation Zoning Plans, Provincial Culture and Tourism inventories and documents obtained from Regional Board

of Conservation of Cultural and Natural Assets, sketches, plans, maps, photographs, historical information from the local people, old and current photographs taken in the research area, visual examinations and reviews, previous studies on the subject, Autocad 2014, ArcGIS 10.2 software.

Based on (Taşçıoğlu, 2018) method, this study consists of three phases;

- 1- Traditional fabric analysis,
- 2- Identifying urban identity elements and historical urban protection criteria,
- 3- The quantitative assessment of protection levels, weighting, calculation of protection index values and creation of protection index distribution maps.

Traditional fabric analyses

Analyses were conducted under the titles of Courtyard, Structure, Street and Square for the cities of Antakya and Gaziantep. In line with these analyses, which were conducted based on a total of 22 criteria, the evaluation criteria were graded between 1 and 5 in order to make quantitative evaluation for the determined identity elements.

Identifying urban identity elements and historical urban protection criteria

In the second stage of the method, urban identity elements and historic city protection criteria were determined. The evaluation criteria were developed based on (Lynch, 1960), (Eckbo, 1969) and (Güremen, 2011). In the light of this information, urban identity elements consisting of 19 main criteria and 61 sub-criteria were determined based on settlement and urban reinforcement scale of the research area. These criteria are described below:

Settlement Scale: Monumental Structures, Examples of Civil Architecture, Buildings with no historical value in terms of compatibility, Street, Courtyard and Square,

Reinforcement Scale: Infrastructure Connected with Reinforcement Elements, Infrastructure Not Connected with Reinforcement Elements and Green Texture,

Evaluation Criteria: Preservation Level, Intervention Level, Original Structure and Material, Renovated Structure and Material, Workmanship, Building Material, Architectural Feature, Floor Height, Facade Layout, Originality Status, New Arrangement, Compliance with Historical Texture, Labor, and Aesthetics.

The charts were scored by the researchers in accordance with the traditional texture analysis chart and graded according to evaluation criteria.

Quantitative Assessment, Protection Index Values and Protection Index Maps

In the evaluation phase of the study, the findings obtained from urban identity elements evaluation and fabric analysis charts were evaluated quantitatively. In the evaluations, the building structures in the study areas (examples of civil architecture, monumental buildings, buildings without historical value, streets and squares) were evaluated according to the 5-point Likert scale.

As stated in the method, the weighting study was obtained by multiplying the general values of the urban identity elements with the coefficients determined in accordance with expert opinions. Expert opinions landscape architect, architect, expert in urban and regional planning is determined based on feedback from a total of 15 people.

These values are;

Identity Elements	Weighting Coefficient
Historical Building	4.88
Historic Street	4.25
Historic Courtyard	3.63
Historic Square	3.75
Non-Historic Building as	1.88

Indexing method was applied in order to compare the general values of urban identity elements, For this purpose, it is assumed that the maximum value that can be taken for each property is 100, and the protection index values are calculated by proportioning each property value to this value.

In the next step, the urban identity elements identified were interpreted in accordance with the protection index values and maps were created by using the Reverse Weighting Method used by Duymuş (2018). In order to create the protection index maps, the values determined in the previous step were transferred to the GIS software and processed on digital aerial photographs. Thus, the urban identity elements determined within the boundaries of the study were transformed into curves and coloured according to the distance to other points. Structure, Courtyard, Street and Square conservation index maps were created separately for the elements identified within the Antakya Urban Protected Area. The value ranges were determined as 0-20%, 20.01-40%, 40.01-60%, 60.01-80%, 80.01-100% and expressed in different colours.

Finally, an integrated conservation map was created where all these identity elements were combined, and the identity elements identified within the urban site were evaluated together. It was obtained by

summing the index values of the selected identity elements within the 100x100 m area during the creation of the map; transferred to the GIS software, and classified in the highest and lowest ranges and expressed in different colours. The value ranges are proportioned with the assumption that the maximum value is 100, and the data that would form the basis for the interpretations about the urban protected area were obtained with these maps.

RESULTS AND DISCUSSIONS

Determination of Urban Identity Elements and Index Values

a)Antakya: 8 buildings and courtyards, 22 streets and connected streets, 1 square were evaluated in Antakya (Figure 2).

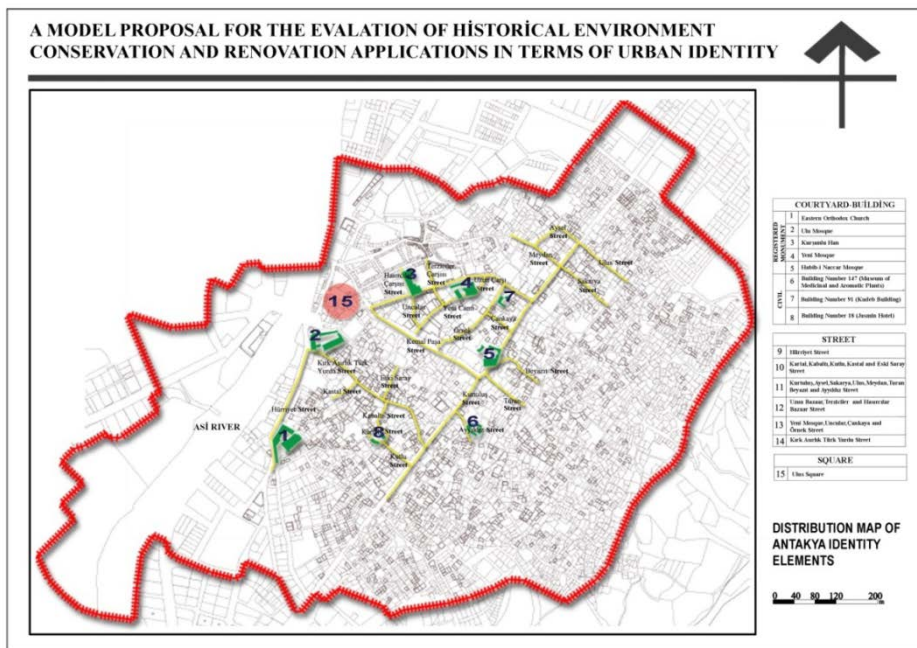


Figure 2. Distribution of Identity Elements in Antakya Conservation Plan (Taşçıoğlu, 2018)

The urban identity elements graded in accordance with traditional texture analysis were scored on visual forms. The index values of the weighted values are expressed in Tables 1, 2, 3 and 4. These values were classified according to certain intervals and evaluated in 5 groups for their suitability.

Table 1. Conservation Index Values of Antakya City Identity Elements (Courtyard-Structure) (Taşçıoğlu,2018)

Unit		Conservation Level	Intervention Level	Original Structure and Materials	Renovated Building and Materials	Workmanship	General Feature
REGISTERED MONUMENT AND CIVIL BUILDING	Eastern Orthodox Church	96.66	76.66	88	70	73.33	80.93
	Ulu Mosque	86.66	80	80	60	83.33	78
	Kurşunlu Han	80	76	86.66	70	80	80.28
	Yeni Mosque	90	84	93.33	68	76.66	82.4
	Habib-i Naccar Mosque	93.33	73.33	100	66.66	73.33	81.33
	Building Number 147 (Museum of Medicinal and Aromatic Plants)	88	80	64	75	80	77.4
	Building Number 91 (Kudeb Building)	77.14	91.42	90	75	80	82.71
	Building Number 18 (Jasmin Hotel)	84	73.33	90	68	73.33	77.73
Unit		Conservation Level	Intervention Level	Original Structure and Materials	Renovated Building and Materials	Workmanship	General Feature
Courtyard	Eastern Orthodox Church	90.1	79.8	90.61	51.48	72.08	76.81
	Ulu Mosque	86.49	82.38	75.51	41.19	75.51	68.1
	Kurşunlu Han	82.38	70.02	92.67	51.48	61.78	71.67
	Yeni Mosque	100	85.32	92.67	61.78	74.14	82.79
	Habib-i Naccar Mosque	89.24	78.94	82.38	61.78	72.08	76.88
	Building Number 147 (Museum of Medicinal and Aromatic Plants)	75.51	68.65	82.38	75.51	77.23	75.85
	Building Number 91 (Kudeb Building)	89.24	82.38	89.24	82.38	77.23	84.09
	Building Number 18 (Jasmin Hotel)	89.24	70.61	90.61	56.63	70.61	75.54
0-20 %		20.01-40%	40.01-60%	60.01-80%	80.01-100%		
Not Appropriate		Partially Appropriate	Moderately Appropriate	Fairly Appropriate	Appropriate		

Table 2. Conservation Index Values of Antakya City Identity Elements (Courtyard-Structure) (Taşçıoğlu,2018)

Unit		Orjinallik Durumu	New Arrangement	Consistence with Historical Texture	Workmanship	Aesthetics	General Feature	
STREET	URBAN EQUIPMENT AND SETTLEMENT SCALE	Hürriyet Street	65.14	63.66	71.07	67.68	67.41	
		Kartal, Kabaltı and Kutlu Street	71.07	47.38	52.64	47.38	44.41	52.57
		Kastal and Eski Saray Street	94.76	86.86	97.12	85.87	89.49	90.82
		Kurtulus Street	65.14	39.97	45.89	45.68	37.9	46.92
		Aysel.Sakarya Ulus. Meydan Turan Beyazıt and Ayyıldız Street	56.85	43.16	31.58	33.84	29.61	39.17
		Uzun Bazaar Street	86.86	61.19	61.19	47.38	47.38	60.8
		Terziciler and Hasircılar Bazaar Street	61.59	57.53	57.53	52.11	51.32	56.02
		Yeni Mosque and Uncular Street	66.33	47.38	50.01	40.61	41.45	49.15
		Çankaya and Örnek Street	71.07	57.9	63.17	50.76	56.26	59.83
		Kırk Asırlık Türk Yurdu Street	94.76	94.76	100	87.99	94.76	94.45
SQUARE	Ulus Square	62.5	85.71	100	98.68	91.87	87.75	
0-20 %		20.01-40%	40.01-60%	60.01-80%	80.01-100%			
Not Appropriate		Partially Appropriate	Moderately Appropriate	Fairly Appropriate	Appropriate			

When the Antakya Conservation Index Values in Tables 1 and 2 are interpreted, the following general conclusions can be reached:

- ✓ It was determined that the highest conservation index value belonged to Yeni Mosque (82.4%), the lowest value belonged to Ulu Mosque (78%). The highest value among registered civic buildings belonged to KUDEB building (82.71%) and the lowest value belonged to The Museum of Medicinal and Aromatic Plants (77.4%). When all the buildings were evaluated as evaluation criteria, the highest criterion belonged to Habib-i Naccar Mosque with original buildings and materials criteria (100%) and the lowest criterion was renovated buildings and materials which belonged to Ulu Mosque (60%). In the restoration works, it is observed that material changes and additions that are not compatible with the original texture of the city have damaged the buildings' value. In this sense, the importance of the arrangements reflecting the spatial accumulations can be seen in the statistical values obtained. The lowest value of the original structure and material belonged to Museum of Medicinal and Aromatic Plants (64%).
- ✓ Among the buildings considered as courtyards, the highest conservation index value was 82.79% in Yeni Mosque and the lowest value was 68.1% in Ulu Mosque. The highest value in the courtyards of Civil Buildings was in **KUDEB** building with 84.09% while the lowest value was in **Jasmin Hotel with** 75.54%. When all the courtyards were compared according to the evaluation criteria, the highest conservation value belonged to Yeni Mosque with 100% while the lowest value was Ulu Mosque with 41.19%. taking renovated structure and material as criteria. It can be concluded that the additions and material changes in the courtyard affect the structure negatively. This is supported by the fact that the value of **renovated building material** was low in Kurşunlu Han (51.48%) and Jasmin Hotel (56.63%).
- ✓ Of the samples examined under the street title, Kırk Asırlık Türk Yurdu Street had the highest conservation index value with 94.45% while the lowest score (39.17%) belonged to Aysel, Sakarya, Ulus, Square, Turan, Beyazıt and Ayyıldız Streets. In terms of street evaluation criteria, the highest **compliance with historical texture** scores belonged to Kırk Asırlık Türk Yurdu Street (100%) while the lowest **aesthetic** criteria belonged to Aysel, Sakarya, Ulus, Meydan, Turan, Beyazıt and Ayyıldız Streets (% 29.61). It can be concluded that Kırk Asırlık Türk Yurdu Street with high values and with its renovated traditional character might serve as an example of the renovation works to be carried out on the streets (Table 4).

- ✓ Ulus Square has a value of 87.75%. The criterion containing the lowest value is **originality** (62.5%).

At the end of the study, the value of all identity elements was taken into consideration and processed on a map and expressed as a result map. When the findings in Figure 3 are examined:

- It is seen that the index values of identity elements vary between **67 and 654**. In this context, the highest value is 654 in Uzun Bazaar. This value is followed by **576** index value in **Kırk Asırlık Türk Yurdu Street**. The lowest value is 67 in the surroundings of Hürriyet Street.
- The index values are at the highest in **Uzun Bazaar** area, gradually decrease from **Hurriyet Street** to Aysel, Ulus, Meydan, Turan, Beyazıt Streets and reach the lowest value there.

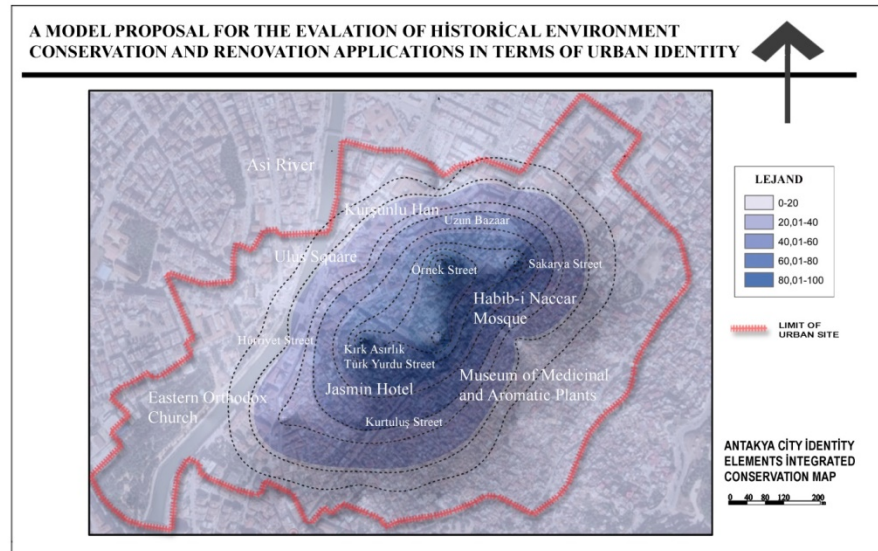


Figure 3. Antakya City Identity Elements Integrated Conservation Map (Taşçıoğlu, 2018)

b) Gaziantep: As part of Gaziantep identity elements, 13 buildings (9 monumental, 4 civic buildings), 13 courtyards, 5 streets, 52 connected streets and 1 square were evaluated in Gaziantep (Figure 4).

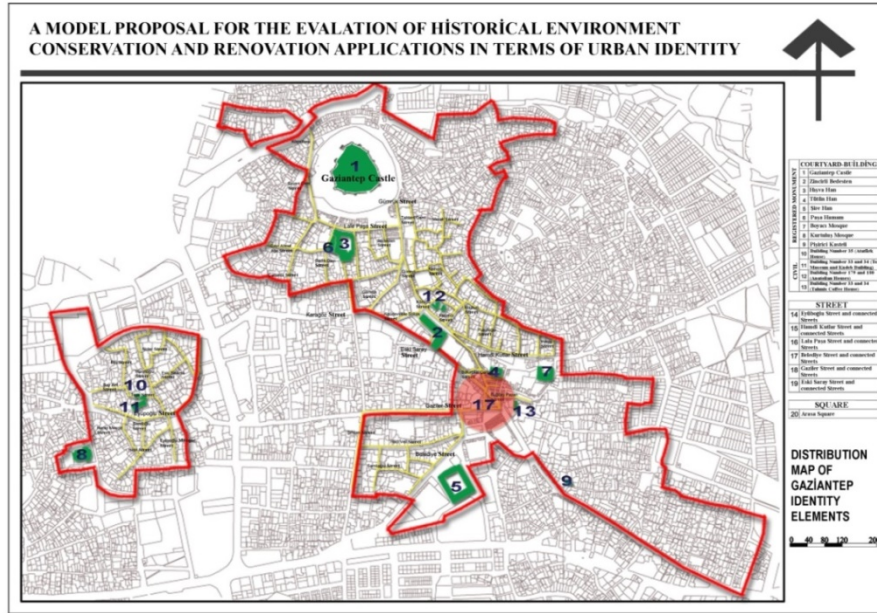


Figure 4. Distribution of Identity Elements in Gaziantep Conservation Plan (Taşçıoğlu,2018)

Table 3. Conservation Index Values of Gaziantep City Identity Elements (Courtyard-Structure) (Taşçıoğlu,2018)

Unit	Conservation Level	Intervention Level	Original Structure and Materials	Renovated Building and Materials	Workmanship	General Feature	
REGISTERED MONUMENT AND CIVIL BUILDING	Gaziantep Castle	78.57	78.57	82.21	56.58	69.56	73.09
	Zincirli Bedesten	90.34	77.29	87.83	59.02	80.8	81
	Hışva Han	93.35	87.83	91.34	73.77	84.31	90.04
	Tütün Han	87.33	77.29	77.29	67.45	77.29	81.60
	Şire Han	75.28	59.72	89.58	56.21	77.29	74.23
	Paşa Hamam	90.34	80.8	80.8	84.31	84.31	84.11
	Boyacı Mosque	87.33	87.83	94.85	63.23	84.31	84.16
	Kurtuluş Mosque	91.34	88.53	94.85	84.31	84.31	88.67
	Pişirici Kasteli	86.33	84.23	100	66.68	72.53	81.96
	Building Number 35 (Atatürk House)	86.95	84.31	84.31	73.77	79.04	81.68
	Building Number 33 and 34 (Toy Museum and Kudeb Building)	87.83	80.8	84.31	63.23	80.8	79.40
	Building Number 179 and 180 (Anatolian Houses)	91.34	80.8	70.26	80.1	84.31	81.36
Building Number 33 and 34 (Tahmis Coffee House)	84.31	73.77	84.31	56.21	79.04	75.53	
Unit	Conservation Level	Intervention Level	Original Structure and Materials	Renovated Building and Materials	Workmanship	General Feature	
Courtyard	Gaziantep Castle	-	-	-	-	-	-
	Zincirli Bedesten	-	-	-	-	-	-
	Hışva Han	86.66	86.66	100	80	80	86.66
	Tütün Han	85	85	90	40	60	72
	Şire Han	54.28	51.42	80	66.66	66.66	63.8

Paşa Hamam	-	-	-	-	-	-
Boyacı Mosque	84	75	100	40	65	72.8
Kurtuluş Mosque	80	80	50	60	60	66
Pişirici Kasteli	-	-	-	-	-	-
Building Number 35 (Atatürk House Inneryard)	85	75	86.66	40	75	72.33
Building Number 33 and 34 (Toy Museum and Kudeb Building Courtyards)	76	60	70	53.33	72	66.26
Building Number 33 and 34 (Anatolian Houses) Courtyard	92	84	95	70	76	83.4
Building Number 328 (Tahmis Coffee House) Courtyard	-	-	-	-	-	-

Table 4. Conservation Index Values of Gaziantep City Identity Elements (Courtyard-Square) (Taşçıoğlu,2018)

Unit		Originality Status	New Arrangement	Consistence with Historical Texture	Workmanship	Aesthetics	General Feature	
STREET	URBAN EQUIPMENT AND SETTLEMENT SCALE	Eyüboğlu Street	90	78.94	84.21	85.29	84.72	84.63
		Eyüboğlu Street Connected Streets	100	88.88	94.44	96.42	93.75	94.7
		Hamdi Kutlar Street	83.33	71.59	84.09	71.25	78.57	77.76
		Hamdi Kutlar Street Streets with Connected Historical Texture	100	90.9	97.72	93.18	97.72	95.9
		Hamdi Kutlar Street Streets with no-Connected Historical Texture	60	42.85	50	50	45.83	49.73
		Lala Pasa Street	80	76.25	91.25	83.33	84.21	83
		Lala Paşa Street Connected Streets	76.78	84.72	89.06	85	81.25	83.36
		Belediye Street	70	51.19	80.95	78.94	80	72.21
		Belediye Street Connected Streets	54.16	42.5	50	50	38.88	47.11
		Gaziler Street	68.75	71.875	98.43	87.5	95	84.31
		Gaziler Street Connected Streets	65	77.77	97.22	100	96.87	87.37
		Eski Saray Street	81.25	73.86	93.18	85	86.9	84
		Eski Saray Street Connected Streets	85	86.11	97.22	96.42	96.87	92.32
SQUARE	Arasa Square	38.81	79.25	95.43	97.04	84.1	78.93	
0-20 %		20.01-40%	40.01-60%		60.01-80%		80.01-100%	
Not Appropriate		Partially Appropriate	Moderately Appropriate		Fairly Appropriate		Appropriate	

When the Gaziantep Conservation Index Values are examined, the following main conclusions can be obtained:

- ✓ Among the registered monumental buildings, **Hısva Han has 90.04%** conservation index value while **Gaziantep Castle has the lowest value (73.09%)**. The highest value for the registered civil structure belongs to Anatolian Houses (81.36%) while the lowest one belongs to Tahmis Coffee House (75.53%). When all the buildings were evaluated as the evaluation criteria, the highest criterion is original structure and material which belong to Pişirici Kastel (100%) while the lowest criterion is renovated structure and material which belong to Tahmis Coffee House and Şire Han (56.21%).
- ✓ In the restoration works, it is observed that material changes and additions that are not compatible with the original texture of the city have damaged the buildings' value. In this sense, the importance of the arrangements reflecting the spatial accumulations can be seen in the statistical values obtained. The highest value in terms of original structure and material was determined in **Pişirici Kastel (100%)** and the lowest value in **Anatolian Houses (70.26%)**. It can be considered that commercial use causes changes in the structure.
- ✓ Among the courtyards, **Hısva Han has the highest index value with 86.66%**, and **Şire Han has the lowest value with 63.8%**. When all the courtyards are compared according to evaluation criteria, it was observed that the highest criterion is **original building and martial** in Hısva Han ve Boyacı Mosque (100%), and the lowest criterion is **renovated building and material** in Tütün Han, Boyacı Mosque and Atatürk Memorial House (40%).
- ✓ It can be concluded that the additions and material changes in the courtyard affect the structure negatively. This can be clearly seen in the courtyard of the Kurtuluş Mosque (50%), where the original structure and the material are at the lowest.
- ✓ Among the streets, **Hamdi Kutlar Street has preserved its historical value (95.9%)** while the streets that are connected to the same street cannot (49.73%). Considering that it has a value of 77.76% as the main street, it can be interpreted as a reflection of the positive and negative effects of protected and unprotected streets connected to the street. The streets with the lowest value are the ones connected to Belediye Street (47.11%) (Table 4).
- ✓ **Arasa Square, which is considered to be a square, is observed to have 78.93% value.** Its originality value was found to be 38.1%.

At the end of the study, the value of all identity elements was taken into consideration and processed on a map and expressed as a result map. When the findings in Figure 5 are examined:

- It is seen that the index values of identity elements vary between **80 and 1118**. In this context, the highest value is 1118 in the surroundings of Anatolian Houses. This value is followed by Tütün

Hani with 1034 index value. The lowest value is determined around Pişirici Kastel with 80.

- After a gradual decrease to zero value starting from **Anatolian Houses** where the index values are at the highest, it reaches to an index value of **683** around Kurtuluş Mosque in **Bey neighbourhood**. This situation supports the fact that the connection between these two areas should be stronger in the city where there are two separate urban protected areas.

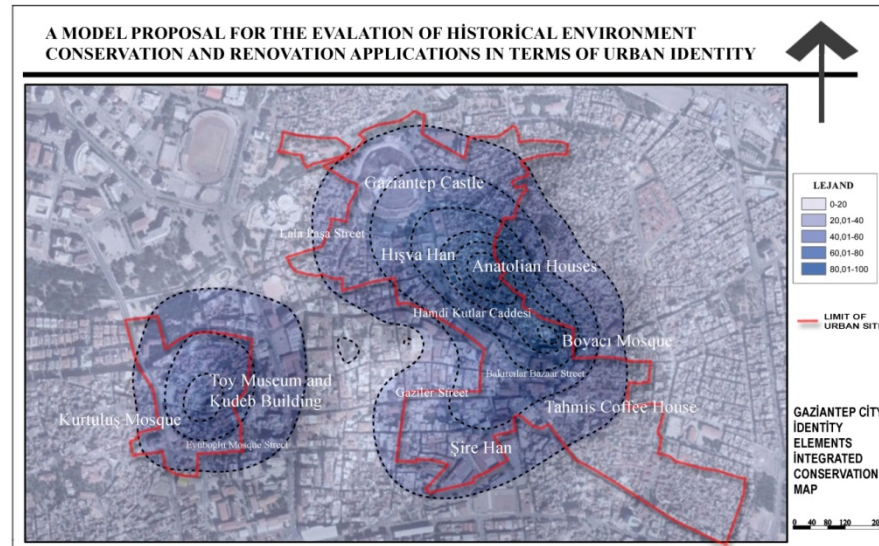


Figure 5. Gaziantep City Identity Elements Integrated Conservation Map (Taşçıoğlu, 2018)

This study aims to evaluate the conservation and renovation works carried out in the urban protected areas in Gaziantep and Antakya based on the urban identity elements and to determine their conservation status. In the light of the findings, it has been determined that the value of the historical texture can be preserved by adopting the traditional fabric and faithful conservation works, but the additions and material changes have negative effects. Sales units and metal stairs placed in the Kurşunlu Han courtyard in Antakya, the cover system in Hısva Han courtyard and the profile additions to Şire Han in Gaziantep are some of them.

All these findings emphasize the necessity of preventing the lack of protection or loss which can occur in conservation works. (Özer, 1998), (Yaldız & Asatekin, 2016), (Kale, 2011), (Rodwell, 2014), (Yuen, 2005), (Radoslav et al, 2013), and (Wang, 2011) support that conservation works in historical sites should be integrated and include sustainable practices. In addition, (Çelik, 2004) stated in his study that the targeted protection could not be achieved in conservation works conducted in Bepazarı. He stated that the restoration of the historical buildings' facade was done, but it was not considered as a whole with their gardens. As reasons for the failure of the targeted protection, he shows the deficiencies in law and regulations, lack of supervision during the implementation process, lack of social awareness, insufficient resources

and political pressures. Research that tries to determine the problems related to protection states that errors should be minimized in the implementation and detailed analysis should be done for the purpose. Considering that many buildings are used for commercial and social reasons today, it has a great contribution to the historical texture as it provides its inhabitants both with tourism and social life opportunities. In this sense, as (Çelik & Yazgan, 2007) stated, the people fit for keeping the historical environment alive are those who have an emotional connection with them and have a mutual history.

CONCLUSION

This study aims to evaluate the conservation and renovation works carried out in the urban protected areas in Gaziantep and Antakya based on the urban identity elements and to determine their conservation status. In the light of the findings, it has been determined that the value of the historical texture can be preserved by adopting the traditional fabric and faithful conservation works, but the additions and material changes have negative effects. Sales units and metal stairs placed in the Kurşunlu Han courtyard in Antakya, the cover system in Hısva Han courtyard and the profile additions to Şire Han in Gaziantep are some of them.

When the studies carried out in Gaziantep and Antakya urban sites are examined, it can be said that the material choices that are not related to the existing materials have negative consequences for Courtyard, Building, Street and Square. Additions to structures and courtyards lead to visually negative effects as well as to deterioration. Although this situation is thought to be related to the functional changes in the structures, it is seen that examples from foreign countries do not implement such practices. It can be thought that this difference is due to the balance of using protection in a holistic approach and an approach that does not go beyond the traditional character. Moreover, in the examples related to the conservation and usage, it is seen that historical environments are not isolated from new settlements, but they still have the feature of being a centre and integrity for that city.

The maps created as a result of the study conducted in Gaziantep and Antakya are important in terms of reflecting their conservation status. In this context, in terms of preserving the identity of the city, it shows the positive results that can be experienced depending on the preservation of existing historical or cultural values, as well as the effect of non-preserved examples.

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CONFLICT OF INTEREST

There is not any conflict of interest

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ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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Resume

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Different Educational Approaches in Design Studio

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Abstract

Purpose

In the architectural design studio education, series of approaches, such as vertical, traditional, constructivist or virtual, are executed. In this research, an experiment was executed with the aim of revealing the effects of different architectural design studio approaches through the comparisons of student assessments. The study was based on the research question related to which of the approaches applied in the architectural design studio is the successful and productive one. The research hypothesized that in architectural design education, the independent design studio approach is more successful than the controlled studio approach.

Design/Methodology/Approach

Two different approaches were compared. The independent studio approach, in which students studied freely in studio milieu, was applied full-time 9 hours a week session in the Fall Semester. The controlled design studio approach, executed as two half days per week in the Spring Semester, proceeded with the desk critiques in a group supervised by an instructor. At the end of each semester a questionnaire that evaluated each design studio approach was conducted to 44 third-year design studio students.

Findings

The controlled design studio appeared to be a more dynamic approach in which following on the critiques of the instructor was ease. The group instructor provided sufficient time to all students for the critiques, whereas in the independent studio approach, the interaction between the instructors and the students was weak. Following up the critiques of different instructors was a difficult process. The controlled design studio was found to be more successful than the independent studio approach. The hypothesis of the research is not confirmed.

Research Limitations/Implications

The most important limitation of this study was that the comparisons were only made through the students' assessments, and the instructors were not included in the research.

Social/Practical Implications

The meetings with the instructors should be arranged twice a week to keep students under control of instructors, and to prevent the reluctance of the students in the design studio.

Originality/Value

This study makes a difference in comparing studio approaches and contributes to the discussions on architectural design studio education.

Keywords: *Architectural design, design education, design studio, educational approaches*



INTRODUCTION

Design, which is a process of analysing, synthesizing and evaluating, is full of repetitive activities that continue between the definition of a problem and its solution. The number of possible solutions to a design problem is infinite and it changes according to the environment it exists in (Ibrahim & Utaberta, 2011).

The design studio is the essence of architectural education. The architectural design studio, which focuses on “learning by doing”, is a sample of a collaborative, multi-sensory, experimental, student-centred, and problem-based training medium. Design studio ensures architectural students all the specialty and knowledge required to generate innovative and imaginative design solutions. Its main purpose is to improve students’ imagination in design, enable them to provide creative approaches to design problems and introduce them to express their ideas through different techniques such as drawings, physical models, computer models, photographs or videos (Ibrahim & Utaberta, 2011). The design studio is the sole process in which the practices for creating an architectural project are experienced by the students, and it prepares them for real-life situations beyond their formal studies.

In the design studio, which is conventional in each of the schools that educate in architecture, the students tackle a design problem in a group of ten to twelve students, supervised by a tutor or a professor. At the beginning of the architectural design studio, the instructors may inform the students about the design problem, objectives, expectations, general method, and assessment measures of the final products.

Each design studio generally requires the creation of architectural space and volume, the selection of the accurate material and structural system, and the presentations in drawings, perspectives and mock-ups. During the semester, instructors negotiate with the students individually about their design once or twice in a week each consisting of at least four-hour blocks. The desk critiques are the appointments with the students discussing their attitudes, their opinions, their progress, their products, and their challenges about the given design problem. Then, at the end of the semester, the final products are assessed in a final jury traditionally composed of the instructors or master designers.

On the other hand, some problems of a traditional design studio can be outlined as follows: The education is an instructor-centred process. The instructors demonstrate to students what to do and students execute what they are told. Besides, the number of students to be supervised per instructor is quite high. The architectural approaches of the famous architects, the instructors, or more senior classmates are imitated by the students. They are reluctant to take initiative and responsibility in design and expect constant affirmation. In addition, the studio is focused on the end product rather than the design process. The collaboration of the students is limited due to the lack of enough group work to enhance students’ creativity (Kurt, 2009; Ciravoğlu, 2014).



Kurt (2009) compared the traditional studio with the constructivist one in general and recommended the conversion of the traditional design studio to the constructivist one to reduce such problems of the traditional design studio and defined the general properties of the constructivist studio as follows: The design process is significant and it does not focus on the resulting design. It is a spread studio in which students from different grades are trained. Collaboration and exchanging of views and ideas are significant in the design process. Besides, in constructivist studios, desk critiques and/or screen critiques are also significant for pursuing the design process of the students as well as in traditional studios.

Ciravoğlu (2014) shared a new design studio method in architectural education to cope with the problems of the traditional design studio mentioned above. In this new teaching method, every week, a single critique between a student and an instructor, and also multiple critiques with all of the studio instructors were conducted. According to Ciravoğlu (2014), this new teaching method gave more responsibility to the student and the project developed with the different ideas of different instructors. Conversely, critiques from different instructors did not match each other and the necessary environment for brainstorming by the whole students and instructors could not be actualized. Even though this new method was found mostly constructive by the instructors, students were not ready for it. Moreover, the cultural codes such as lifestyle, rules, daily routines, personal identity, experience, beliefs, age, gender, family type, the area of residence, and level of education should be considered as significant determinants in developing a new design studio method. Önal and Turgut (2017) indicated that the difference in students' design studio products was due to the distinctness in their cultural schemes. The cultural schemes are the encoding, storage, and interpretation of cultural information and cultural experiences of the individual through cognitive processes. Cultural experiences are related to the cultural components that affect the individuals' perception, learning, and decision-making processes by constituting normative concepts such as worldview, lifestyle, and habits. These normative concepts are coded and stored and constitute cultural schemes. These entire processes convert to a series of spatial behavioural systems that reveal design action. In this way, the cultural schemes of the individual affect the ability of his/her learning and designing. The design knowledge that is needed in the design process is directly proportional to the cultural scheme of the designer. Hence, individual cultural components, such as cultural values and students' abilities of cognition must be admitted as a significant part of the studio approach to educate the students as designers.

Akalın and Sezal (2009) mention *the vertical design studio approach* which was conducted at Gazi University Department of Architecture. Students are independent to choose one of the six *design studio ateliers* which have different conceptual formation and have an equal number of architectural students from different grades. It is a studio-based learning

approach in which projects on the main theme are determined starting from less complex projects for freshmen and more difficult ones for senior classes. *Preparation, conceptual sketches and models, drafts and concrete models, and final (full drawings, concrete models)* are the four phases in each atelier. Akalin and Sezal (2009) mention that the vertical design studio is a dynamic, flexible and free medium where academic, interdisciplinary and professional practices are executed, and students from different grades can be trained together. Likewise, Ketizmen (2003) stated that in a design studio system where design problems with different complexity levels were carried out simultaneously, students could exchange ideas with the students from higher grades and gain different perspectives, besides the assistance of the instructor.

On the other hand, some disadvantages of the vertical design studio can also be mentioned. According to K. A. Youssef (2014), the vertical design studio is suitable for training groups with a small number of design students whereas the instructors need to make more efforts due to the concentration problems of students within the group or/and between groups. Besides, hard collaboration is strongly recommended. The rapid development of experienced senior students during the design process motivates some students and helps the design problems to progress. However, this rapid progress in design causes motivation losses in some students because of a feeling of lagging behind. Besides, during the preliminary preparation of the design studio, there may be disagreements among instructors regarding the design problems, space size and detail scale to be given to students at different levels due to the lack of a unified curriculum (Adigüzel Özbek, Yücesan, Melikoğlu Eke & Özar, 2018).

Ketizmen (2003) examined the design studio methods applied at Anadolu University Department of Architecture under six headings: *the theoretical knowledge transfer method* in which visual materials are transferred to the students through seminars and conferences; *criticism method* including the juries, group critiques, and individual critiques; *sample project method* in which the architectural solutions or suggestions belonging to professionals are examined as examples; *application-oriented design method* which allows the student to practice with mock-ups or computer-aided three-dimensional modelling from the beginnings of the design process; *problem-solving method* in which the students come up with the appropriate solutions to a design problem in and of itself; and *individual study method* which aims to improve the student's ability to generate individual solutions to a design problem after all the exercises are carried out together with the instructor in the design studio environment.

Instead of using existing templates, Paker Kahvecioğlu (2007) suggests a studio curriculum that provides a medium for creating new ideas and enables creativity to be enhanced through different types of activities such as collective group works, workshops, work-trips, and one-day charrettes, or competitions. Thus, the students experience the design



activities and produce new ideas rather than being passive learners and the design studio becomes an intellectual, interactive, transitive, sharing, participatory, and communicating medium besides games and entertainment.

Afacan (2012) focused on the contributions of group work in an architectural design studio and performed an analysis from the two perspectives of the learning process and the process of working with others. Regarding the learning process, she was found out that group work was an effective way of learning. Group work allows students to be informed about different ideas with brainstorming and to be able to approach the design problems from different viewpoints. Experiencing different ideas of design enhanced their creativity. Furthermore, working within a group improved the relationship of the students with other people. Ulusoy (1999) traced freshman students' visual and verbal abilities via their design studio performances. The students with verbal or graphic abilities reflected this distinctness in their abilities onto their designs and their cognizance of design in terms of graphic or verbal thinking. Students with graphic abilities can be better at expressing themselves visually than verbally.

Niraj Verma (1997), in the empirical research, questioned the benefits of design studio training or professional experience in understanding the design theory and found out that the students' knowledge of design theory was higher when the students had prior design studio experience or professional work-experience as compared to when they did not. The second interpretation was that design studio is crucial for freshmen architecture students and theoretical education may be more appropriate for the students who have some experience in the design such as senior classes or grad ones.

Demirbaş and Demirkan (2003) focused on the architectural design process through learning styles that were “accommodating (learning by experiencing and doing)”, “diverging (learning by experiencing and reflecting)”, “converging (learning by thinking and doing)” and “assimilating (learning by thinking and reflecting)”, and reviewed the effects of learning style preferences on the performance of design students. Most of the freshman students learning styles were converging and assimilating. The research was concluded with the claim that different stages of design education should be associated with different learning styles. The findings of Demirbaş and Demirkan (2007) also support their previous research that during design education, students use all the learning phases. During the design process, a variety of learning experiences that emphasize different learning styles must be provided to design students. Design groups that have students with different learning styles can be arranged. For instance, diverging learners are the most creative ones, and they bring various ideas and ways of problem-solving to the studio medium. Besides, converging learners are successful in design performance. On the other hand, Kvan and Yunyan (2005) indicated that the formulation of the design program (ill-divine or

well-divine), presentation requirements (drawing, model or oral presentation) and duration of design studio could disadvantage certain learning styles.

Oh, Ishizaki, Gross and Yi-Luen Do (2013) highlight that the student learning may be influenced by the interaction between the instructor and students. Since critiquing is essential for the relationship between the instructor and students, Oh *et.al* (2013) present some ways of providing effective feedback to design students. The instructor requires choosing the appropriate critiquing types such as *desk critiques*, *group critiques*, *interim review*, *final review*, and *informal interaction* according to the students' levels of knowledge, the students' grade as well as the project phases. Multiple critiquing types may be used in a single studio course. For instance, for freshmen architecture students, the instructor can use more advisor critiques in the early phases and can be more facilitator later in the semester. Besides, Uluoğlu (2000) underlines the significance of effective communication between the instructors and the students in architectural design education and characterizes the studio critiques as indispensable tools for enhancing the students in producing their design ideas. Group critiques are substantial in indicating the typical issues and problems of design to the students, and juries are crucial for periodical assessments of the overall designs.

As mentioned before, instructor-student and student-student discussions are the most significant sources of knowledge for students in design studio training. Since such discussions and communications are executed during course hours and in the studio medium, they can have some time and space limitations. Moreover, some students may prefer not to share their knowledge or share some part of it so that they can be more successful in design than their peers. Wu, Lin, Wen, Perng, and Hsu (2016) proposed an effective architectural design knowledge management system which can enable students to share their works, communicate with their instructors or peers, post their design drafts during their design process, offer critiques on each other's works, and offer comments from their instructors. This proposed system can help to improve the communication between instructor-student and student-student, effectively enhance the students' learning efficiency, and consequently improve their learning quality.

Architectural design studio education is being restated by the developments in design computing and the use of digital media in the last decades. Reffat (2007) introduces two approaches for architectural design studio education using information and communication technology which includes a paperless design studio, and a collaborative virtual design studio. The approach of paperless design studio encourages the usage of high-end software such as Alias/Wave front, Softimage, and Maya which provide numerous new design ideas to the students, and the opportunity to test climatic changes, colour and texture schemes. Besides, a virtual design studio approach enriches the architectural experience with cross-cultural studios in collaboration with

other schools of architecture by using video conferencing. Furthermore, Kurt (2011) indicates that architectural design studio should comprise the use of computer-aided design programs, virtual design studios, digital studios and internet applications throughout the design process to encourage the students to be interactive, process-oriented, open-minded, initiative, self-controlling, participatory, and collaborative.

Demirkan and Afacan (2012) explored design studio education from a different viewpoint by measuring the creativity of the products and mentioned that as the instructors analyse a design product, the characteristics of novelty and influence, the amount of elaboration, and lastly, qualities of design as rhythm, repetition, unity, and order are the factors that affect the instructors. Mutlu Danacı (2015) specified that creativity is a phenomenon in the design studio. Giving the necessary knowledge to the student at the right time, referring the student to research, providing integration between theoretical and applied courses, and using theoretical knowledge in the application of design will encourage a certain amount of creativity.

It has been observed from the literature review mentioned above that in architectural design studio education series of approaches, such as vertical, traditional, constructivist or virtual, are executed. However, the effects of the distinctive design studio approaches on students learning, design process and the final product are being unknown. Thus, the research was based on the following research questions mentioned below:

- Which approach applied in the architectural design studio is the successful and productive one?
- What are the positive or negative aspects of the design studio approaches that differ from the others?
- How can weekly architectural design studio hours be organized to enhance student achievement?
- What are the suggestions to the instructors for the execution of the design studio that can influence student achievement?

In this study, an experiment was executed with the aim of revealing the effects of different architectural design studio approaches on the design studio education through the comparison of student assessments. This study makes a difference in comparing studio approaches and contributes to the discussions on architectural design studio education. Besides, the fact that the discussions were conducted only through student assessment constitutes the limitation of the study.

THE AIMS OF THE STUDY

The aims of this study can be listed as follows:

- To compare different approaches in architectural design studio education through student assessments.
- To explore the positive and negative aspects of different approaches applied in architectural design studio education;

- To develop an appropriate design studio approach to increase students' design studio achievements;
- To generate directory suggestions for instructors or tutors;

In this research, two different approaches applied in architectural design studio were compared: *independent design studio approach* and *controlled design studio approach*. The independent studio approach was applied as full-time 9 hours a week session, in which students studied freely in a design studio milieu without engaging to a specific group of students and an instructor. In this approach, the students were not obligated to get critiques from any of the instructors. Conversely, the controlled design studio approach, applied as two half days (4 + 5 hours) per week, proceeded with the desk critiques in a group of 12 to 15 students, supervised by an instructor or a professor. In this approach, the students were obligated to present their work and get individual critiques from their instructor.

The controlled design studio approach has similar features as the traditional design studio; however, *the independent design studio approach* is an experimental approach envisaged by the researcher and the studio instructors. In the infancy of the research, the advantages and the disadvantages related to the independent design studio, which are detailed in the discussion section, were revealed by the researcher.

The hypothesis of the study was constituted as follows:

H: In architectural design education, the independent design studio approach is more successful than the controlled studio approach.

PROCEDURE

This research examined two different design studio approaches, experienced by third-year design studio students from the Department of Interior Architecture and Environmental Design at a university in Istanbul. The independent design studio approach was executed in the Fall Semester while the controlled studio approach was executed in the Spring Semester.

Within the scope of Design Studio III in the Fall Semester, the students were given the task of designing a medical clinic such as a dentist, veterinarian, and aesthetic centre. The design problem and the design area which was selected for the organization of the medical clinic were the same for all the students. Design Studio III was held with the participation of 44 students, four instructors, and one research assistant. The total education time in a semester was 14 weeks, and the design studio was executed full-time 9-hours a week. The studio hours proceeded with the students practicing in two ateliers which had similar physical properties and were located side by side while the instructors gave critics alternately in both ateliers when requested by the students. Two interim reviews and one final jury were held to evaluate the products. At the end of the final jury assessment of the Design Studio III in the Fall Semester, a questionnaire that evaluated the independent



design studio approach was conducted to 44 third-year students. It was directed to all the students simultaneously on a single day.

Within the scope of Design Studio IV in the Spring Semester, the students were given the task of designing a boutique hotel near the Bosphorus. The design problem and the design area which was selected for the organization of the boutique hotel were the same for all the students. Design Studio IV was held with the participation of the same 44 students, the same four instructors, and the same research assistant as the Design Studio III held in the Fall Semester. The total education time in a semester was 14 weeks, and the design studio was executed two half days (4 + 5 hours) per week. The studio hours proceeded with the group critiques in two ateliers which had similar physical properties and were located side by side. Two interim reviews and one final jury were held to evaluate the products. The method of the interim reviews and the final jury were the same for both of the approaches. The same questionnaire was directed to the same students at the end of the final jury assessment of Design Studio IV in the Spring Semester to evaluate the controlled design studio experience. The questionnaire was conducted to all third-year students simultaneously on a single day.

Initially, the students were informed in detail by the researcher about the aims of the study, privacy, and withdrawal. The students completed the questionnaire consisting of 15 general and 3 specific questions that queried both studio approaches and also personal questions such as age and gender. The students were asked to assess the following headings with 5 point Likert scale: the contributions of the design studio approaches to their creativity and self-confidence; their interaction with peers and instructor(s); their utilization of the design studio medium during class hours; and the impact of the design studio approaches to the jury assessments and final grades. It was accepted that while answering the questions, the participants reflected their real emotions and thoughts; responded to the questionnaire ambitiously, correctly and completely; and understood the words literally.

At the beginning of each semester, a directive was constituted about the studio rules and the predictions of the design studio approach that would be executed in that semester, and it was approved by all the instructors. The meetings with the instructors were held in 4-week periods in both fall and spring semesters to control if the instructors follow the directive of the applied design studio approach, to prevent possible education style differences between the instructors, and to share the experiences. In this study, the researcher assumed that the instructors did not make a significant mistake to affect the whole process.

The most important limitation of this study was that the comparisons were only made through the students' assessments, and the instructors were not included in the research due to the insufficient number of instructors to generalize the results. Besides, only third-year students participated in the design studios that were carried out with different approaches in different semesters. Therefore, another limitation of this

study was that the students from other grades were not included in the comparisons. The problem-solving skills of the students varied depending on their semesters. It was predicted that the varied cognitive skills of the students could affect the results, especially in the independent design studio approach. Therefore, the study was conducted with third-grade students with the same cognitive skills.

Participants

This research was executed with the participation of 44 students (31 female, 13 male; the youngest age was 21; the oldest age was 29; the mean value was 22,9) from the Department of Interior Architecture and Environmental Design at a university in Istanbul.

Students who experienced **the independent design studio approach** were given the task of designing a medical centre within the scope of Design Studio III in the fall semester while within the scope of Design Studio IV; the students who experienced **the controlled design studio approach** were given the task of designing a boutique hotel in the spring semester.

The purposive sampling method was used in the election of the participants. In this study, which aims to compare two different approaches applied in architectural design studio education, third-year students who experienced both independent and controlled design studio approaches were chosen as participants.

RESULTS OF THE EXPERIMENT

The data obtained from the questionnaire were analysed in the IBM SPSS 24.0 package program. Initially, the reliability of the questionnaire was evaluated. Then, the Kolmogorov-Smirnov normality test was applied to the data. Since the normal distribution was achieved, Paired t-test was used for the difference analysis.

Reliability Analysis of the Questionnaire

Cronbach Alpha, Split, Parallel and Absolute Parallel (strict) tests are used to analyse the reliability of a questionnaire in general. Cronbach Alpha test results above 70% mean that the survey is successful. Besides, some researchers expect this value to be over 75%. The fact that other reliability criteria are above 70% indicates that the internal consistency of the questionnaire is ensured, and inferences can be trusted (Özdamar, 2004). As can be seen in Table 1, the percentages indicated and expected to be at the end of all four tests met the confidence criterion. Hence, it was concluded that the sample results were consistent and reliable with high-reliability values. As all of the reliability criteria were over 70%, it was concluded that the survey was successful and consistent in itself, and the results would reflect the real values.

Table 1. Results of the reliability analysis of the survey (Erçevik Sönmez, 2019)

Criteria	Reliability Results of the Survey
Cronbach Alpha	0.825
Split	0.824-0.826
Parallel	0.824
Strict	0.825

Testing the Hypothesis

It was tested whether there was a significant difference between the independent design studio approach (IDS) and the controlled design studio approach (CDS). The same dependent groups were in question since the same students evaluated both design studio approaches. Kolmogorov-Smirnov normality test was applied to find out which testing method to be used. Since the p-value of both design studio approaches for the questionnaire was $p > 0.05$, H_0 hypothesis was accepted indicating that normal distribution was achieved. In this circumstance, Paired t-test was applied (Table 2).

Table 2. Paired t-test results (Erçevik Sönmez, 2019)

		Mean	N	Std. Dev.	t statistics	p
This experience enhanced my creativity.	IDS	2,7955	44	1,33955	-6.378	0.000*
	CDS	4,4773	44	,69846		
This experience encouraged me to produce new ideas.	IDS	2,8182	44	1,20605	-7.942	0.000*
	CDS	4,5227	44	,66433		
The design studio was dynamic.	IDS	2,0909	44	1,09583	-6.658	0.001*
	CDS	3,6136	44	1,12510		
This experience led me to investigate the sample designs.	IDS	2,5682	44	1,37075	-5.813	0.000*
	CDS	4,0000	44	,83527		
During the studio hours, I drew and practiced with mock-ups in the design studio medium.	IDS	3,1591	44	1,27486	-2.178	0.002*
	CDS	3,6818	44	,95899		
I had the knowledge of different design ideas of my peers.	IDS	2,6591	44	1,25648	-4.661	0.026*
	CDS	3,7500	44	,86603		
I interacted with all the instructors, and asked for comments.	IDS	2,4091	44	1,33501	-2.985	0.000*
	CDS	2,9318	44	,97403		
The instructor(s) provided sufficient time to me for the critiques.	IDS	1,6818	44	1,17677	-14.030	0.001*
	CDS	4,6364	44	,71823		
I was confused by the critiques and comments I've had in this experience.	IDS	4,0909	44	1,23549	13.543	0.028*
	CDS	1,3636	44	,65026		
This experience negatively affected my end-of-term grade.	IDS	3,9773	44	1,33797	11.076	0.000*
	CDS	1,5227	44	,66433		
I studied effectively in the design studio medium.	IDS	2,6364	44	1,20253	-5.529	0.000*
	CDS	3,9545	44	1,01052		
I did not need to continue studying on my design drafts out of the studio medium.	IDS	2,1136	44	,96968	-4.900	0.000*
	CDS	3,2727	44	1,12815		
I felt emotionally strong during the jury assessments.	IDS	1,8409	44	1,07710	-10.812	0.003*
	CDS	4,4318	44	,75937		
It was easy to follow up the critiques and comments.	IDS	1,9318	44	1,16933	-11.127	0.007*
	CDS	4,5000	44	,76249		
This experience positively affected my ability to think, criticize and design.	IDS	2,1818	44	1,14674	-8.934	0.000*
	CDS	4,2727	44	,89867		



* 0.05 significant level statistically significant difference

Significant differences were obtained in both stages of the experiment. The average values of the controlled design studio approach were higher, except for the statements “I was confused by the critiques and comments I've had in this experience” and “This experience negatively affected my end-of-term grade”.

Discussions

Design studios are the basis of architectural education that aids students to develop their ability to research, think, criticize, interpret, design and present. Independent and controlled design studio approaches were both expected to enhance students' creativity and encourage them to produce new ideas. However, the independent design studio approach provided the opportunity to ask for comments and critiques from any of the instructors of that studio, to develop the design ideas and draft drawings all day long by practicing freely in the design studio medium, and to observe and criticize different design ideas of the peers in each studio day since the students freely scattered to the design studio medium. Therefore, the mean values of the independent design studio approach were predicted to be higher than the controlled design studio approach. Conversely, the mean values of the controlled design studio approach on enhancing the creativity of the students were higher than the independent design studio approach. In the independent design studio approach, the confusion of the students caused by the critiques and comments of different instructors, the reluctance of the students to practice in the studio medium all day long and to estrange from their design practices due to the studio meetings applied once a week might have negatively affected their courage for producing new design ideas.

It was predicted that the independent design studio was a dynamic approach while the controlled design studio was a static one. However, according to student assessments, the controlled design studio approach was more dynamic than the independent design studio approach. The inaccurate behaviours of the project coordinator and/or the instructors in the execution of the independent design studio approach, the challenges in the interaction between the students and the instructors, and also the defectiveness in the information exchange among students might have caused this approach not to be evaluated dynamically. Conversely, in the controlled studio approach, the fact that the interaction and the knowledge sharing of the instructor with the students was more intense and individual, that the instructor had high domination over all the design ideas within the group, and that the students also dominated on the design ideas of their group peers and generate new ones for them might have caused this approach to be evaluated dynamically.

The mean values of the controlled design studio approach regarding leading the students to investigate the sample designs were higher than the independent design studio approach. In the independent design



studio approach, students might have remained incapable to analyse and interpret the comments of different instructors of that studio. Therefore, the investigations that students were expected to do to develop their original design ideas were probably negatively affected. Besides, the instructors might have deficiencies in exemplifying and providing resources to students and encouraging them to research. On the other hand, in the controlled design studio approach, the instructor might have had the opportunity to share their professional and academic experiences with the students and exemplify these within the group. Besides, the instructor was concerned with the students individually, and knew their deficiencies; so, informed them about the appropriate resources and the research methods to overcome those deficiencies. Therefore, in the controlled studio approach, the weekly individual desk critiques with the instructor created a compulsory impulse for the students to investigate their deficiencies in design and to project learned ones to their design. These results confirm the significance of effective communication between the instructors and the students in architectural design education, and the inevitability of desk critiques for pursuing the design processes of the students (Uluoğlu, 2000; Kurt, 2009; Oh *et.al*, 2013).

In the independent design studio approach, it was predicted that students would have enough time to draw and practice with mock-ups in the design studio medium all day long and to develop their design drafts by discussing their ideas several times with any of the instructors. On the other hand, in the controlled design studio approach it was envisaged that two half-day studio meetings were not sufficient to practice in the studio medium and that after individual desk critiques with the instructor, students would not have enough time to revise their mock-ups and drawings in the studio medium and get some critiques again. However, contrary to the prediction, in the controlled design studio approach, the mean values regarding drawing and practicing with mock-ups in the design studio medium during studio hours were higher than the independent design studio approach.

In the independent design studio approach, it was accepted that the students would not be divided into groups and that all of the peers would draw and practice together in interaction. Therefore, the students were expected to be informed of the different design ideas of their peers and to contribute with their criticism. The controlled design studio approach proceeded with the individual desk critiques in a group of 12 to 15 students, supervised by an instructor, and students were not expected to be informed of the design ideas of their peers in other groups. However, in the controlled design studio approach, the mean values regarding knowing different design ideas of the peers were higher than the independent design studio approach. In the independent design studio approach, students were probably not concerned with other projects of their peers designed within the studio medium while trying to advance their design drafts by interpreting different ideas from the different

instructors. Since they concentrated on their design drafts, they might have missed the critiques of other projects of their peers. Physical conditions might have also been an obstacle. In a controlled design studio approach, a group of 12 to 15 students and an instructor gathered around a table, and desk critiques and evaluations were done within the group. Therefore, it was physically adequate for the students to follow the desk critiques and to generate ideas within their group or the others. This result supports the study conducted by Afacan (2012) which emphasized that working within a group improved the relationship of the students with peers.

In the independent design studio approach, students were free to get critiques from any of the instructors. So, they were expected to interact with all the instructors and to ask for comments. On the other hand, in the controlled design studio approach, students were not expected to interact with any of the instructors except their group instructor. However, in the controlled design studio approach, the mean values regarding interaction with all the instructors, and asking for comments from them were higher than the independent design studio approach. In the independent design studio approach, the challenges in the physical conditions of the studio medium such as the division of the students into two or more studios due to the inadequate dimensions of the studio mediums, the situations that prevent the dominance of the whole studio medium such as columns, etc.; the reluctance of the student to ask for critiques from all the instructors; and the problems that occurred during the execution of the approach might have caused negative assessments.

The controlled design studio approach was executed as two half days (4 + 5 hours) per week; and it was predicted that the group instructor might not be able to allocate sufficient time for individual desk critiques to all students within the group in a half-day studio meeting. On the other hand, in the independent design studio approach, the students had the opportunity to draw and practice in the studio medium all day long and to get critiques from different instructors. Conversely, in the controlled design studio approach, the mean values regarding providing sufficient time by the instructor for the critiques were higher than the independent design studio approach.

In the independent design studio approach, analysing different interpretations could be a difficult process for students and confusions by the critiques and comments of different instructors might have been experienced. On the other hand, in the controlled design studio approach, understanding, analysing and executing the comments and the critiques of the same instructor in every studio meeting was not a confusing process. As predicted, in the controlled design studio approach, the mean values regarding confusion by the critiques and comments of the instructors were higher than the independent design studio approach.

In the independent design studio approach, the mean values regarding the negative effects on end-of-term grades were higher than the controlled design studio approach. In the independent design studio



approach, due to the lack of the individual desk critiques between the instructor and the students, the students might not be able to understand the deficiencies in their design drafts, and improve them. Also, they might not be able to evaluate the critiques of the instructors and might have made incorrect or inadequate design decisions. Since the instructors did not interact with the students individually, the students believed that the instructors did not have any opinions about their studio performances. Thus, those interpretations can be cited as a negative evaluation of the independent design studio approach in terms of the end-of-term grade. In the controlled design studio approach, the fact that the instructor was able to criticize and improve the deficiencies in design drafts of the students individually; and that the instructors had opinions about the studio performances of every student they supervised, might have caused this experience to be evaluated positively in terms of the end-of-term grade. Herein, this result reconfirms the significance of *desk critiques and group critiques* which are the essence of the relation between the instructor and students (Oh *et.al*, 2013).

The independent design studio approach, since it was applied as full-time 9 hours a week session, allowed the student to study effectively in a design studio medium and to get critiques from different instructors at any time. Conversely, in the controlled studio approach, as it was executed as two half days (4 + 5 hours) per week and the students' obligation to get individual critiques from their instructor and to follow the critiques of the others, there might not have been sufficient time to study effectively in the design studio medium. However, the mean values of the controlled design studio approach regarding studying effectively in the design studio medium were higher than the independent design studio approach. The negative evaluations, contrary to the prediction for the independent design studio approach may have originated from physical inadequacies in the studio medium such as the lack of a sufficient number of desks or drafting boards and the lack of electrical outlets for computerized practices, the inabilities in executing the approach and in encouraging students to study in the studio medium, and the reluctances of the students to practice effectively in the studio medium. Moreover, in the controlled design studio approach, the dominance of the instructors to the group of students they supervised, their encouragement of students to study effectively in the studio medium, and their trace and evaluation of design drafts individually may have caused positive evaluations.

It was predicted that in the independent design studio approach students had sufficient time to improve their design drafts in the studio medium so that they would not need to continue studying on their drafts when they were out of the studio medium. However, the mean values of the controlled studio approach regarding students not studying on their design drafts outside the studio medium were higher than the independent design studio approach. Therefore, design studio hours of *full-day in a week session* executed in the independent design studio

approach did not eliminate the necessity for students to practice outside the studio medium.

In the controlled design studio approach, the presence of a group instructor who tracked, guided, and criticized the students for 14 weeks, supported the students schematically and emotionally. Therefore, it was predicted that students would feel emotionally protected, supported and strong during the jury assessments. Conversely, the independent design studio approach, where the students were not supervised by a group instructor, may have caused the students to feel emotionally unsupported. As predicted, the mean values of the controlled design studio approach regarding students feeling emotionally strong during the jury assessments were higher than the independent design studio approach. This result reconfirms the significance of an effective relationship between the studio instructors and the students in design studio education (Uluoğlu, 2000).

The mean values of the controlled design studio approach regarding the ease of following the critiques and comments were higher than the independent design studio approach. As mentioned before, in the independent design studio approach, the critiques received from different instructors might have caused confusion and difficulties might have been experienced in following the given critiques.

It was predicted that the independent design studio approach positively affected the ability of the students to think, criticize and design. However, contrary to the prediction, the mean values of the controlled design studio approach were higher than the independent design studio approach.

The discussions mentioned in details are summarized in the table below:

Table 3. The comparisons of the two design studio approaches (Erçevik Sönmez, 2020)

The predictions	The controlled design studio approach	The independent design studio approach
Enhancing the creativity of the students	Enhanced more	Enhanced less <ul style="list-style-type: none">• Due to the confusion of the students caused by the critiques of different instructors;• Due to the reluctance of the students to practice in the studio medium all day long;• Due to the alienation from the design practices since the studio meetings applied once a week;
Encouraging students to produce new ideas	Encouraged more	Encouraged less



Dynamic vs. Static	<p>More dynamic</p> <ul style="list-style-type: none"> • Due to the intense and individual interaction between the instructor and the students; • Due to high domination of the instructor within the group; • Due to the students' knowing on the design ideas of their group peers and generate new ones for them; 	<p>Less dynamic</p> <ul style="list-style-type: none"> • Due to the inaccurate behaviours of the project coordinator and/or the instructors in the execution of the studio approach; • Due to the challenges in the interaction between the students and the instructors; • Due to the defectiveness in the information exchange among students,
Leading students to investigate the sample designs	<p>More investigation</p> <ul style="list-style-type: none"> • The instructor informed the students individually about the appropriate resources. • The weekly individual desk critiques created a compulsory impulse to investigate the deficiencies of the students in the design. 	<p>Less investigation</p> <ul style="list-style-type: none"> • Due to the incapability of the students to analyse and interpret the comments of different instructors; • Due to the deficiencies of the instructors in exemplifying and providing resources to students and encouraging them to research;
Drawing and practicing in the studio medium	<p>More effective</p>	<p>Less effective</p>
The knowledge of different design ideas of their peers	<p>More knowledge about the peers</p> <ul style="list-style-type: none"> • Physically adequate for the students to follow the desk critiques; 	<p>Less knowledge about the peers</p> <ul style="list-style-type: none"> • The students might have missed the critiques of their peers while trying to advance their design drafts by interpreting different ideas from the different instructors.
Interaction with all the instructors	<p>More interaction</p>	<p>Less interaction</p> <ul style="list-style-type: none"> • Due to the challenges in the physical conditions of the studio medium; • Due to the reluctance of the students to ask for critiques from all the instructors; • Due to the problems that occurred during the execution of the approach;
Sufficient and equal time to all students for the critiques	<p>More sufficient and equal time</p>	<p>Less sufficient and equal time</p>
Confusing critiques and comments	<p>Less confusing process</p>	<p>More confusing process</p>



	<ul style="list-style-type: none">• Due to the critiques of the same instructor in every studio meeting;	<ul style="list-style-type: none">• Due to the different critiques of the different instructors;
The end-of-term grade	Affected Positively <ul style="list-style-type: none">• Due to the opinions of the instructors about the studio performances of every student they supervised;	Affected Negatively <ul style="list-style-type: none">• The students believed that the instructors did not have any opinions about their studio performances.
Studied effectively in the design studio medium	More effective <ul style="list-style-type: none">• Due to the dominance and the encouragement of the group instructors;	Less effective <ul style="list-style-type: none">• Due to the physical inadequacies in the studio medium;• Due to the inabilities in executing the approach;• Due to the inabilities in encouraging students to study in the studio medium;• Due to the reluctances of the students;
The necessity to practice outside the studio medium	The approach did not eliminate.	The approach did not eliminate.
Jury assessments	Felt emotionally protected, supported and strong <ul style="list-style-type: none">• Due to the presence of a group instructor;	Felt emotionally unsupported <ul style="list-style-type: none">• Due to the lack of a supervision by a group instructor;
Following up the critiques and comments	Easier	Not easier <ul style="list-style-type: none">• Confusion and difficulties due to the critiques received from different instructors;
Contribution to the students' ability to think, criticize and design	Contributed more	Contributed less

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In this research, questionnaires were not conducted with the instructors due to the insufficient numbers for the statistical analysis and generalizations. The opinions of the instructors about the design studio approach and the process were obtained from the meeting records repeated in four-week periods. The positive and negative opinions of the instructors about the process of the independent design studio approach are as follows:

“A dreamy studio medium has been created. Although students complain about the full day studio, the brainstorming was executed at the level that this approach intended. ... Many of the students

never worked in the studio. They don't know how to benefit from the studio medium. They didn't present their work and didn't get individual critiques from the instructors. The student, who presented his/her products or drawings in the morning session, disappeared in the afternoon session.” UŞ

“We created a creative and interactive studio medium. It was different from the readymade system. The student tried to interpret various ideas and evaluations, and reflect them on his/her designs. ... Giving critiques to many students was a tiring process. Especially at the end of the day, we could not find the power to guide the students.” TBD

“The students helped each other's designs. Actually, they united against the instructors. We can say that a strong collaboration occurred. ... We could not understand whether the project was designed by the student or he/she received any professional help since we couldn't observe the students in detail. We couldn't understand their skills and design abilities. ... In fact, we graded students impartially. In the juries, we only graded what the students drew and presented. The subjective judgments did not interfere.” DM

“We knew more or less about all the projects; and contributed to their development. ... We were confused about whom we gave critiques, and what kind of corrections we made. Also, giving critiques to design later on the comments of an instructor caused conflicts and disputes among the instructors.” KOA

The positive and negative opinions of the instructors about the process of the controlled design studio approach are as follows:

“The interaction between the groups was weak. Some cooperation among the students within the group was done; but as for me they were not sufficient for brainstorming. ... Some students from the other groups came to ask questions and ask for critiques. Working within a group did not prevent the students to ask for critiques from the other instructors beyond his/her group supervisor. This was very good; but the time was limited. It did not suffice... It was nice to have a close relationship with the students and pay attention to them individually. The master-apprentice relationship continued. To guide the students to complete their deficiencies was more ease. For instance, I could bring sourcebooks and drawings to show within the group or lend them to someone.” UŞ

“Some students do not work in the studio medium in any way, but some are more willing to do so. Most of the students anticipated readymade answers to their design problems. ... It was a less tiring process to criticize a certain group of students. But we could not know what the students in the adjacent studio were doing. If it hadn't been for the periodical meetings among the instructors, we would not also know what the instructors did.” TBD

“As an instructor, I know all my students, their projects, and their ability to design and draw. I could understand their skills and design abilities. I could know what and how much he/she could do. Thus, you can develop a specific approach for each student. ... Of course, being with students within a group affected the grade I gave at the end of the semester because I knew all the students within my group, and also their ability to design. The subjective judgments can be involved in the assessment.” DM

“It was difficult to provide equal time for all students. The studio hours were extended. I could not give sufficient critiques to some of my students. ... Practicing with the students for two days caused the project to progress faster. The student did not alienate from the design practices, and so the instructor did not. Their concentration was high. To follow up on the student and their progress was easy.” KOA

All the results described above in detail demonstrate that the negative assessments of students about the independent design studio approach were higher than the controlled design studio approach. As verified with the statistical comparisons of both approaches, the controlled design studio approach was utilized as more positive. **The research hypothesized** that in architectural design education, the independent design studio approach is more successful than the controlled studio approach. The hypothesis of the research **is not confirmed**. Even though the independent design studio approach was predicted to be a more successful, creative, collaborative and experimental approach and a more suitable studio medium for studying, students were not ready for it. This result supports the study conducted by Ciravoğlu (2014), in which a new teaching method of students developing their projects with different ideas of different instructors was introduced. But distinctly, in this research the questionnaires were conducted only with students due to the insufficient number of instructors for statistical analysis. More comprehensive research where the opinions of instructors for both design approaches will be evaluated with a survey to generalize and compare the findings with this research is recommended.

CONCLUSIONS

In this study, an experiment was conducted that compared two different educational approaches -independent and controlled design studio approaches- executed in architectural design studio education via students' assessments. In the Fall Semester, a questionnaire that evaluated the independent design studio approach was conducted to 44 third-year students while in the Spring Semester, the same questionnaire was conducted to the same students to evaluate the controlled design studio experience. The key points of this research are summarized below:

- The controlled design studio approach is more successful than the independent studio approach.

- In the independent studio approach, the instructors did not provide sufficient and equal time to all the students for the critiques; therefore, the interaction between the instructors and the students were weak. Following up the critiques and comments of different instructors was a difficult process for the students, and hence, confusions were experienced. Studying and practicing full-day in the studio medium did not eliminate the necessity for students to continue studying outside the studio medium. Students thought that the independent studio approach negatively affected their end-of-term grade and they felt emotionally defenceless and unsupported during the jury assessments. The independent studio experience did not contribute to the students' ability to think, criticize and design.

- The controlled design studio was a dynamic approach that enhanced students' creativity more than the independent design studio approach and led them to investigate the sample designs, projects and materials more. It encouraged students to produce new ideas. Students studied effectively in the design studio medium, and knew different design ideas of their peers. Following up the critiques and comments of the instructor were ease since the students studied with the same instructor over a semester; and hence, confusions were not experienced and students could concentrate more on their designs. The group instructor provided sufficient time to all students for the critiques. Studying and practicing twice a week in the studio medium did not eliminate the necessity for students to continue studying outside the studio medium. Students did not think that the controlled studio approach negatively affected their end-of-term grade, and they felt emotionally strong and supported during the jury assessments. The controlled studio experience contributed to the students' ability to think, criticize and design.

During the execution of the independent and controlled design studio approaches, some deficiencies related to the approaches were identified; and the reasons for these deficiencies were determined by the data analysis and the opinions of the instructors. The deficiencies and their reasons for the independent design studio approach are listed below:

- *The confusion of the students* due to the critiques and comments of different instructors;
- *Not practicing efficiently in the studio medium* due to the reluctance of the students to practice in the studio medium all day long, and the physical inadequacies in the studio medium such as the lack of a sufficient number of desks or drafting boards;
- *The alienation from the design practices and inability to concentrate* due to the execution of studio meetings once a week, and the lack of high domination of a group instructor;
- *The problems in the interaction between the students and the instructors* due to the lack of an individual and intense relationship between them, the reluctance of the students to ask for critiques from

some of the instructors, and the requests of the students to interact with a group instructor;

- *The problems in the interaction among the students* due to the lack of desk critiques where an exchange of ideas within the group is executed, and the high concentration on their designs and disregarding of the projects of their peers designed within the studio medium while interpreting different ideas from the different instructors;
- *The difficulty in following up the critiques* due to the confusion of the students caused by the various comments of different instructors;
- *The problems during the execution of the approach* due to the disagreements between the instructors, and not having understood the approach sufficiently and correctly;
- *The decrease in the students' desire to generate new ideas* due to the confusion of the students caused by the critiques of different instructors; the lack of the compulsory impulse of weekly individual desk critiques, and the non-necessity of getting critiques from any of the instructors;
- *The negative judgments about the final grade* due to the lack of supervision by a group instructor, the feeling of being emotionally unsupported, and the in cognizance of the instructors about the design abilities and the studio performances of the students;

The deficiencies and their reasons for the controlled design studio approach are listed below:

- *Not practicing efficiently in the studio medium* due to the insufficient time to practice in the studio caused by studio hours executed as two half days (4 + 5 hours) per week, and the physical inadequacies in the studio medium such as the lack of a sufficient number of desks or drafting boards;
- *Insufficient time for the critiques* due to the studio hours executed as two half days (4 + 5 hours);
- *The decrease in the students' desire to generate new ideas* due to the lack of sufficient brainstorming, the desire of the students to imitate the instructor, and the reluctance to take initiative and responsibility in design;
- *The problems during the execution of the approach* due to the disagreements between the instructors, and not having understood the approach sufficiently and correctly;
- *The unawareness of the products of the other groups of students* due to the critique sessions of the supervisor within a group of 12-15 students, having a chance to analyse all the products only in juries, and the lack of interaction among the design groups.

In line with the general conclusions of the study, the following suggestions were listed for the instructors:

- The assessments of the students should be taken into consideration when determining the design studio approach.

- Design studios should be designed through dynamic approaches that enhance the creativity of the students, encourage them to produce new ideas and direct them to research.
- Students should be encouraged to produce in the studio medium.
- Physical conditions such as the dimensions of the studio medium, the number of the drawing tables, the number of the electric sockets, daylight, illumination, natural ventilation and noise control must be sufficient so that students can study comfortably in the studio medium.
- The meetings with the instructors should be arranged twice a week to keep students under control of instructors, to ensure that the students manage the design processes appropriately, and to prevent the reluctance of the students in the design studio.
- The arrangement of studio hours for half a day should not be accepted as an obstacle for students to study in the studio medium.
- Supervision by an instructor over a semester is recommended in terms of the individual tracing of the instructor to all the students, and the willingness of the students for the design studio.
- Necessary precautions should be taken to eliminate the confusion, lack of interest, the feeling of insecurity and lack of support of the students in some studio approaches where students can get critiques from more than one instructor, or where the instructors alternate for giving critiques.
- The weekly hours of the design studio and the quality of studio work do not reduce the extracurricular workload of students.

In this research, two different educational approaches –independent and controlled design studio approaches- executed in architectural design studio education was compared via third-year design studio students' assessments. Furthermore, the results of this study may change when the instructors' opinions for both design approaches are discussed. This discussion can be diversified with the comparisons between horizontal and vertical design studio approaches and/or between weekly desk critiques and monthly jury sessions approaches executed in graduation studios. This study on third-year design studio students' assessments can also be adapted to different studio grades and a greater number of students. Consequently, this study can be a sample for the other researches on similar subjects.

CONFLICT OF INTEREST

The author declared that there is no conflict of interest in this study.

FINANCIAL DISCLOSURE

The author declared that this study has received no financial support.

ETHICS COMMITTEE APPROVAL

In this research, the necessary permissions were obtained from the relevant ethics committee of the university before the experiment.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions and organizations) during the survey, in-depth interview and observation.

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Resume

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An Evaluation of an Integrated Disaster Management and an Emergency Assembly Area: The Case of Kadıköy, Istanbul

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Abstract

Purpose

The present study aims to analyze the accessibility and adequacy of the emergency assembly areas (EAAs) in Kadıköy which has the highest ratio of at-risk buildings in Istanbul.

Design/Methodology/Approach

In this study, accessibility and adequacy of the EAAs are analyzed. To analyze the accessibility network analysis carried out within a geographic information system (GIS) program is used. Through an accessibility analysis, the ratio of the population that resides within 500 m walking distance of each EEA was ascertained. Furthermore, an adequacy analysis was carried out to measure the size of each emergency assembly area, and its adequacy for the population within its catchment area was analyzed. In addition, an accessibility and adequacy analysis were made of the social infrastructure facilities that have been defined as second-level emergency assembly areas.

Findings

According to the research findings, 57 percent of the current population of the district resides within 500 m of one or more of Kadıköy's 73 EAAs. It was found also that the emergency assembly areas accessible by three-quarters of the population within 500 m could be considered inadequate. Based on these findings, it was concluded that emergency assembly areas should be of adequate size, away from disaster risks and accessible to all residents, and that the standards for the open and closed areas within the emergency assembly areas should be defined in legislation and included as mandatory in future plans.

Research Limitations/Implications

The research was limited to Kadıköy which has the highest ratio of at-risk buildings in Istanbul.

Originality/Value

When evaluated alongside relevant studies regarding EAAs, the present study can be said to contribute to literature in its analysis of both the accessibility and adequacy of the existing EAAs and secondary assembly areas, taking a holistic approach, the study makes use of a network analysis method in the GIS program to identify the number of people living in each residential structure within the Kadıköy district. In addition, the study seeks to contribute further to literature by measuring the accessibility of social and technical infrastructure within the city planning discipline through a network analysis.

Keywords: *Disaster risk, emergency assembly area, integrated disaster management, network analysis, urban planning*

INTRODUCTION

Turkey's urban areas are home to some 93 percent of the country's population (TUIK, 2019), and the risks that have come to be associated with urban areas related to disasters have had a significant effect the current situation and the urban development of cities. In the first decades of the 2000s, the risks associated with such natural phenomena as earthquakes, floods, tsunamis, storms, hail, torrential rain, extreme temperatures and drought that were affecting Turkey's cities started to be discussed. The 1999 Marmara-Gölcük earthquake, the 2011 Van earthquake, the 2020 Elazığ-Malatya earthquake, the 2009 Ayamama flood, the 2016 Mersin flood, the 2018 Ankara Mamak flood and the 2019 Düzce flood are just a few of the various disasters witnessed in our country within the last two decades. Similar natural events affecting cities, how it was prepared to settle in Turkey against a variety of disasters and the discipline of disaster management have risen to the top of the agenda in the discipline of urban planning.

"Disaster management" involves analysis, planning, decision-making and evaluation activities and the organization of available resources with the objectives of preparedness, risk reduction, intervention and protection against various hazards (Kadioğlu, 2008, p.12). Disaster management is thus an integrated approach that includes not only disaster response and post-disaster recovery processes, but also pre-disaster preparedness and damage limitation activities. In this context, it is of vital importance to establish emergency assembly areas (EAA), which is the first stage area prior to moving on to the evacuation area¹ and to establish temporary shelters in the wake of a disaster. EAAs, serve various functions in disaster management, as muster points, evacuation areas, emergency aid centers and temporary accommodation areas. For this purpose, Spaces that usually function as parks, public squares, sports arenas and religious and educational facilities can be refunctioned as emergency assembly areas (UDSEP²; KENTGES³). The size, spatial distribution, usability, accessibility and connections to emergency transportation routes of EAAs earmarked for use in the event of a disaster are of vital importance. The previous earthquakes in İstanbul, which is home to approximately one-fifth of the country's population, and the large earthquake that is predicted to hit Marmara⁴ have led to an increase in the discussions of the need for EAAs that was first identified after the Marmara earthquake in 1999. However, these discussions have mostly centered on the number and size of these areas, and whether or not they are zoned for construction. For an integrated disaster management approach, however, the accessibility of these areas and their adequacy for the existing population should be discussed as a priority within the planning discipline. Researching the adequacy and accessibility of the EAAs for compliance with the planning criteria is the main research question of the study. The present study aims to determine the level of accessibility and adequacy of the

¹ Evacuation areas; It refers to the wider areas where people will be evacuated safely from the disaster area, close to transportation routes and larger than the emergency assembly areas.

² National Earthquake Strategy and Action Plan

³ Urban Development Strategy-Integrated Urban Development Strategy and Action Plan (2010-2023)

⁴ It is expected with a probability of 62% that an earthquake with a magnitude greater than 7 will occur within the next 10 years in the Marmara region (İstanbul Urban Transformation Master Plan Analysis data, 2016).

⁵ Kadıköy District also according to JICA Disaster Prevention / Mitigation Basic Plan (2002); this is among the İstanbul districts where the ratio of parks and open spaces to people, required for pre-evacuation, is the least.

⁶ Accessed from: <https://www.metro.tokyo.lg.jp/english/guide/bosai/index.html>.

⁷ Religious facility area, education facility area, sports facility area, health facility area etc.

established EAAs based on an analysis of Kadıköy,⁵ as the İstanbul district with the largest number of at-risk buildings.

Most of the research on disaster preparedness in the international literature are directed towards temporary shelter areas (Kar and Hodgson, 2008, Li et al. 2012, Chen et al., 2017). In addition, there are some crucial studies regarding emergency assembly/evacuation areas in the international literature. One of the most crucial of these is the “Disaster Preparedness Tokyo” report (TMG, 2015). The Tokyo Metropolitan Government has published a “Disaster Preparedness Tokyo” to help people get prepared for various disasters. It contains easy to understand information on how people use evacuation places, temporary evacuation area and evacuation center during the disasters. This information also proactively prepares people in the event of an emergency (TMG, 2015⁶). Furthermore; Tansley et al. (2015) evaluated the level of accessibility of the emergency service areas in Namibia and Haiti; and Ye et al. (2012) analyzed access to temporary shelter areas under different scenarios within the Lujiazui Street region in Shanghai. Wex et al. (2014) develops a corresponding decision support model that minimizes emergency response times.

As for national cases; there have been previous studies questioning the accessibility and adequacy of emergency assembly areas and evaluating their features from different perspectives. Aksoy et al. (2007) determined that the green areas in the Fatih district of İstanbul would be appropriate as muster points after examining the status of these areas before and after the Marmara earthquake. Çınar, Akgün and Maral (2018) made an analysis of the location and characteristics of the EAAs in the district of Karşıyaka in İzmir and compared the results with national and international standards; while Zengin Çelik et al. (2019) analyzed emergency assembly areas in different urban textures in the Narlıdere district of İzmir; Aman (2019) investigated the landscape infrastructure of the EAAs within the open and green areas of the Bağcılar district of İstanbul; Erdin et al. (2018) studied the EAAs within the İzmir province, analyzing their integration with the transportation network; and another such study was carried out by Buldurur and Kurucu (2015), who investigated emergency transportation connections in İstanbul. On the subject of accessibility, Erdem, Erdin and Özcan (2017) examined the accessibility of emergency assembly areas during disasters; while Zengin Çelik et al. (2017) evaluated the usability of EAAs. In their study, Unal and Uslu (2016) carried out a network analysis using a geographic information system (GIS) program in which they examined the accessibility of the temporary shelter areas in Adana. When evaluated alongside these previous studies, the present study can be said to contribute to literature in its analysis of both the accessibility and adequacy of the existing EAAs and secondary assembly areas,⁷ taking a holistic approach, the study makes use of a network analysis method in the GIS program to identify the number of people living in each residential structure within the Kadıköy district. After an analysis

of the findings, the study identifies the regions that are most in need of intervention and improvement.

In addition, the study seeks to contribute further to literature by measuring the accessibility of social and technical infrastructure within the city planning discipline through a network analysis. In the scope of this study, the integrated approach to disaster management and the situation in Turkey were firstly investigated, after which the planning criteria related to emergency assembly areas were explained. Afterwards, the national laws and regulations related to EAAs were evaluated, and the responsibilities defined in city planning legislation were analyzed. In the Method section, the data set and the analysis method applied within the research were explained, and the findings related to the accessibility and adequacy of the EAAs in Kadıköy were presented. This section also presents the results of the analyses of the accessibility and adequacy of the social infrastructure (Çınar et al., 2018) in the locations defined as secondary assembly areas. Finally, the results are evaluated and suggestions are made related to disaster management and EAAs, primarily for the Kadıköy district.

LITERATURE REVIEW

Integrated Disaster Management Approach and the Situation in Turkey

Policies related to disasters underwent a substantial reworking toward the end of the 1990s. One of the most important goals of these changes was to address the post-disaster “dressing the wounds” activities that had previously shaped disaster policies, and involved the development of a disaster management approach that included policies aimed at the development of disaster preparation and risk reduction approaches after determining pre-disaster hazards and risks (Balamir, 2007). This new approach to disaster management aimed to reduce the long-term macro losses linked to disasters (Balamir, 2007). Reducing the negative effects of disasters on sustainable development has become one of the global targets (Okay, 2019). The economic losses linked to disaster risks exceed the dimensions of the country⁸. The increase in the economic losses attributable to disasters since 1981 has been greater than the increase in per capita income,⁹ and disasters are, without doubt, among the most significant problems preventing sustainable development (Kadioğlu, 2011; Okay, 2019). The International Decade for Natural Disaster Reduction (IDNDR) study of the United Nations was accepted as the starting point for new policies in an integrated approach to disaster management for the 1990–2000 period, after which, a new period of radical change in disaster management was embraced in line with the new strategies determined at the Yokohama Conference (1994) and with the “International Strategy for Disaster Reduction (ISDR)” established in 2000 in which these strategies were applied. The organization behind the ISDR hosted the Kobe Conference, and published a new declaration entitled the “Hyogo Action Framework”

⁸ Compiled from Murat Balamir's speech during the Gazi University City Talks in 2015.

⁹ Compiled from Murat Balamir's speech during the Gazi University City Talks in 2015.

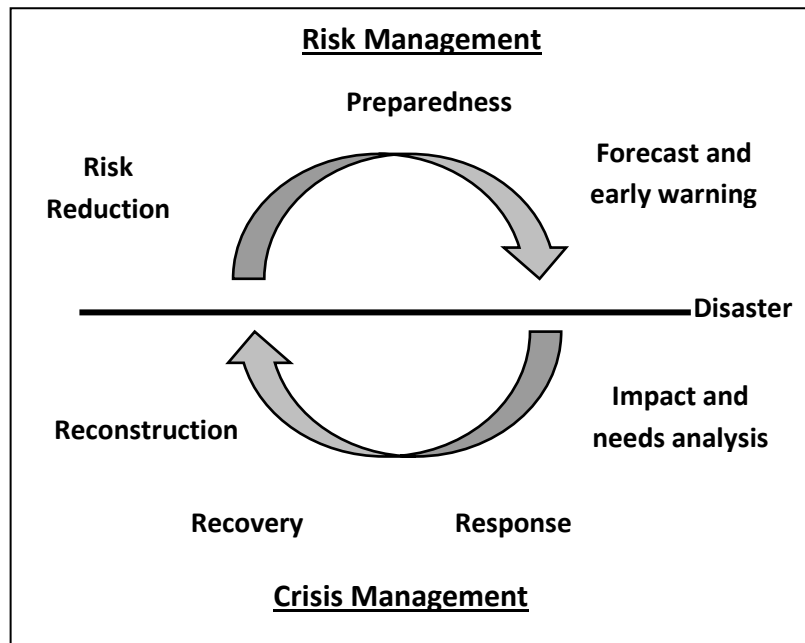
¹⁰ In our country, the August 17 and November 12 earthquakes of 1999 caused more than 17,600 deaths, and economic loss was calculated to be over \$12 Billion (Güler, 2008, p.40).

¹¹ For example, the Disaster Mitigation Act enacted in the United States in 2000 (Disaster Mitigation Act) (Balamir, 2007).

¹² Disaster management stages include risk reduction efforts and planning studies (Kadioğlu, 2011).

(2005–2015) (Balamir, 2007, p.32). In the “Disaster Risk Reduction Global Assessment Report” published by the United Nations Office for Disaster Risk Reduction (UNISDR) in 2013, the damage to the global economy resulting from natural disasters was determined to be \$2.5 trillion in 2000¹⁰ (Kundak, 2014). Many countries have developed their own regulations and practices related to risk mitigation, especially since the Yokohama Conference¹¹ (Balamir, 2007, p.32). Within the scope of these regulations and practices, the most important role of integrated disaster policies is identifying the multiple risks that may lead to loss of life, property and environment, and to minimizing potential losses in the wake of disasters by reducing these risks (Balamir, 2007; Kadioğlu, 2011; Tezer & Türkoğlu, 2008). The main beneficiaries of the new international disaster policies can be summarized as “urban areas” (especially areas where population and infrastructure are concentrated) and “low-income groups”, and “participation” processes, as common issues that should be observed. Accordingly, the concept of integrated disaster management¹² (Figure 1) involves analysis, planning, decision making and evaluation processes, covering all segments of the society, and preparing for all kinds of hazards, reducing possible risks and losses, and steering the post-disaster response and recovery stages (Kadioğlu, 2008; Kadioğlu, 2011; Tezer, 2001; Tezer et.al. 2015).

Figure 1. Classical disaster management cycle (adapted from Kadioğlu, 2011).



¹³ Regulation No. 1959 - 7269 on Measures and Assistance to Be Entered into Effect Regarding Disasters Affecting the Life of the General Public; The State of Emergency Law No. 2935, which came into force in 1983; the Zoning Law No. 3194, which came into force in 1985; the Regulation on Emergency Aid Organization and Planning Principles regarding Disasters numbered 88/12777 in 1988; the Regulation on Buildings to be Constructed in Disaster Areas in 1996; and the Regulation on Prime Ministry Crisis Management Center, numbered 96/8716 that entered into force in 1997 (Balta, 2013, p.70,71).

Radical changes were made to disaster-related policies after the 1999 Marmara earthquake in Turkey. An analysis of the legal and administrative situation¹³ prior to 1999 reveals that focus was mostly on the post-disaster response and recovery phase, and its spatial content, and that disaster risk reduction studies were few in number (Kadioğlu, 2008; Kadioğlu, 2011; Güler, 2008; Balamir, 2007; Okay, 2018; Tezer et al., 2015). Although studies were launched to determine

potential hazards and risks and to take short-term protective measures and long-term preventive measures in Turkey's 1989 National Report as part of the "International Decade for Natural Disaster Impact Mitigation" drive of the United Nations (covering the years 1990–2000), these studies have not been successful due to lack of resources and problems in application (Güler, 2008, p.37). A new radical era in disaster management was embraced following the devastating 1999 Marmara earthquake in Turkey. As a result of the economic, social and environmental losses resulting from the earthquake, studies of disaster risk reduction and disaster resilience started to be given priority (Kundak, 2014; Okay, 2018). The "Disaster Prevention/Mitigation Basic Plan-2002" prepared by the Japan International Cooperation Agency-JICA for İstanbul in 2002, is one of the most important examples of new-period studies, containing suggested approaches to damage estimation and risk reduction. Following this, through the İstanbul Earthquake Master Plan (2003) prepared by Boğaziçi University, İstanbul Technical University, Middle East Technical University and Yıldız Technical University, the different forms of urban risk (macroform risks, urban texture risks, land use risks, production loss risks, special risk areas, special building risks, risks arising out of dangerous use, emergency officer distribution risks, open areas risk analyses) were identified for the first time, and suggestions of how to reduce the risk of disasters were brought to the table with mitigation planning (Balamir, 2004; Balamir, 2011). The plan also introduced an "Action Plan" for high-risk areas where priority interventions were required, and provided details of the plan. The mitigation plan, containing detailed disaster risk reduction suggestions to raise the safety and resilience of İstanbul, still constitutes the basis for today's master plan studies, although it could not be applied (İstanbul Deprem Master Planı-İDMP, 2003). The Disaster and Emergency Management Presidency (DEMP), which was established in 2011 in accordance with the Law No. 5902 on the Disaster and Emergency Management Presidency, prepared a National Earthquake Strategy and Action Plan-2023 (NESAP) aimed at reducing the risks associated with disasters and facilitating the creation of resilient urban systems. The Turkey Disaster Response Plan (TDRP) and the Turkey Disaster Risk Reduction Plan (TDRRP) strategic documents, and the Provincial Disaster Risk Reduction Plan (PDRRR) are ongoing studies into the reduction of risks in the new era (Okay, 2019, p.55). In the recent development plans, the Ninth Development Plan proposes given the task and authority to prepare mitigation plan to local governance (Dokuzuncu Kalkınma Planı, 2006) and the conducting of micro-zoning studies in areas where there is a high risk of disaster, and the findings of these studies are to be taken into consideration in the zoning plan, as stated in the Tenth Development Plan, prioritizing the areas at the greatest risk of disaster (Onuncu Kalkınma Planı, 2013). In the Eleventh Development Plan, it was suggested that resilient urban systems and effective disaster management are also required to support

sustainable urban development; and the plan also proposed a development plan that takes into account disaster risks and hazards, along with provincial disaster risk reduction plans (On Birinci Kalkınma Planı, 2019). These developments in local governance can be assessed through an analysis of two laws. While planning studies related to natural disasters are proposed in the Metropolitan Municipality Law No. 5216; Municipality Law No. 5393 contains statements related to emergency planning, covering mostly the post-disaster period. The regulations on Spatial Planning and Construction, which came into force in 2014, details the measures to be taken when carrying out urban risk analyses or mitigation plan studies in urban regions where the risk of disasters is high, and to base them on the plans. Although the applications of the Law on the Transformation of Areas under Disaster Risk, numbered 6306, which entered into force in 2012, is aimed at risk reduction, its focus is on construction and ground risk. Master plan urban transformation studies have been carried out in certain provinces and districts, but have yet to be integrated into the spatial planning system and have not become nationally widespread.

In the developments mentioned above, although proposals for the disaster risk reduction plans are embedded within the legal and administrative framework, the many applications made in Turkey to date have been mostly directed at post-disaster response, while the participation dimension is observed to be lacking. Disaster management systems have become more widespread over the last decade, however a number of problems have been encountered, such as the lack of sustainability in the current preparedness and risk reduction stages, the inadequate participation of all stakeholders in the planning and decision-making processes, and the lack of effective studies into urban resilience (Okay, 2019). The planning of post-disaster evacuation areas is one of the most important components of disaster preparedness and risk reduction efforts, and can be categorized under three headings:¹³ emergency assembly areas, evacuation areas and temporary shelter areas. Although emergency assembly areas were defined in our country after the 1999 Marmara earthquake, there are still significant deficiencies in their adequacy and accessibility, and so the criteria to be followed when planning such areas and their status in planning legislation should be examined as a priority.

Planning Criteria for Emergency Assembly Areas

EAs, known also as local evacuation areas or pre-evacuation areas (JICA & IBB, 2002), are defined as “safe areas to where people can relocate away from potential hazards” until temporary shelter centers after a disaster and emergency can be established.¹⁴ Such muster points play a crucial for those who survive the first shocks after a disaster, being places where they can locate their relatives, access communication, gain access to health information, satisfy their human needs, and transition to regional evacuation areas and temporary

¹³ T.C. İçişleri Bakanlığı, Afet ve Acil Durum Yönetimi Başkanlığı, Basın ve Halkla İlişkiler Müşavirliği. (2019). “Toplanma Alanını Öğren ki Canın Sağ Olsun-Basın Duyurusu”. Accessed from: <https://www.afad.gov.tr/toplanma-alanini-ogren-ki-canin-sag-olsun>

¹⁴ T.C. İçişleri Bakanlığı, Afet ve Acil Durum Yönetimi Başkanlığı, Basın ve Halkla İlişkiler Müşavirliği. (2019). “Toplanma Alanını Öğren ki Canın Sağ Olsun-Basın Duyurusu”. Accessed from: <https://www.afad.gov.tr/toplanma-alanini-ogren-ki-canin-sag-olsun>

shelter areas in the future. Emergency assembly areas, referred to also as gold watches (Ergünay et al., 2008), play a crucial role in the first 72 hours following a disaster. The present study plays an important role when planning the accessibility and adequacy of these areas.

As stated in the previous section, while the strategic plans and action plans at a national level define targets and strategies aimed at creating more sustainable and resilient urban developments against disasters, in the planning regulations, the planning criteria of these areas are not clearly defined. According to the National Earthquake Strategy and Action Plan (2012–2023) prepared by the Disaster and Emergency Management Presidency (DEMP), and the Integrated Urban Development Strategy and Action Plan (2010–2023) prepared by the Ministry of Environment and Urbanization, transportation and evacuation corridors, emergency assembly and temporary shelter facilities etc. are to be provided to allow a rapid and effective response in the event of a disaster. To meet these objectives, the social infrastructure and their standards should be determined to be used after disasters according to the population and needs. In spatial planning, therefore, it is proposed to consider such functions as assembly points and transportation, health services, temporary shelter and logistics as a whole in the event of an emergency. However, it is stated that only under the title of implementation development plan in the regulations on Spatial Planning and Construction (Article 24, Clause 10) that the opinions of institutions and organizations related to assembly areas will be collected, and that analyses and researches will be carried out based on this data. That said, assembly points are not included in the plans of diverse scale, and the regulation on Spatial Planning and Construction includes only suggestions. The Planned Areas Zoning Regulation contains details of the use of national gardens as assembly points in the event of a disaster, although the planning criteria of such areas in terms of size, availability, links to emergency transportation routes, accessibility, adequacy, etc., have not been embraced in the regulation. Accordingly, determining the criteria to be followed in the planning of these areas is crucial for the enhancement of safety. Although no direct or precise planning criteria for emergency assembly areas has been produced in literature, there are diverse studies from which clues can be taken.

In the criteria proposed in the "Disaster Prevention Reduction Basic Plan" prepared for İstanbul by the Japan International Cooperation Agency (JICA & IBB, 2002), as one of the main reference institutions in disaster risk reduction studies, the emergency assembly areas are evaluated at two scales, being "local evacuation areas" (emergency assembly areas) and "regional evacuation areas". Within this plan, emergency assembly areas have been determined at a neighborhood scale, with parks and open spaces as well as public lands and facilities in each neighborhood unit (primary school unit, 300–500 households/1500–2000 people) identified that can be easily accessed

¹⁵ Very small parks and open spaces are not suggested an assembly area in order to be safe against building damage to the environment after the disaster (JICA & IBB, 2002).

¹⁶<https://www.cnnturk.com/video/turkiye/toplanma- Alanlari-nasil-olmali>, Date accessed: 22 January 2020

¹⁷ In the social facility areas that can be used as an emergency shelters in the study, the confined space standard per person has been accepted as 3.5–4.5 m². (Çınar et al., 2018).

¹⁸ In the Disaster Regulation for Infrastructures No. 26435, issued in 2007, design and engineering calculations been made obligatory so that infrastructure facilities are resilient to natural disasters. In addition, the minimum requirements been made obligatory for the material selection, construction, operation, maintenance and repair of infrastructure facilities.

by the public. Although there are public schools and mosques in all neighborhoods that are easily accessible, it has been determined that parks and open spaces of 2000 m² (minimum 500 m²)¹⁵ may be the most suitable locations as pre-evacuation areas, since schools and mosques are not seismically resilient. That said, disasters can occur in any weather conditions (snow, rain, storms, etc.), as emphasized in some studies, and human needs in winter conditions may not always be best met in open spaces. For this reason, sports arenas, and religious and educational facilities that have no nearby explosion risk (such as a gas station) and are earthquake resistant should be preferred as assembly points.¹⁶ As can be understood, there are two different approaches to the determination of appropriate emergency assembly areas. When these approaches are evaluated together, in the wake of a disaster, publicly-owned parks and green areas with no restricting elements within the structure or the surrounding areas should be treated as priority muster points (JICA & IBB, 2002; Zengin Çelik et al. 2019). The presence of restrictive elements around such social facilities as schools, religious facilities, sports arenas (walls, fences, etc.) make them more appropriate as secondary assembly areas when evaluated in terms of earthquake resilience (Zengin Çelik et al. 2019; Çınar et al., 2018). On the other hand, some social facilities may offer emergency shelter in different climates, may have been made earthquake resistant, may better meet human needs and may have more usable features than parks and green areas. However, social facilities that have been made earthquake resilient and that can provide emergency shelter¹⁷ in different climatic conditions have more usable features than parks and green areas in terms of satisfying human needs.

Along with the quality of EAAs, another crucial criterion is the accessibility of such areas. Emergency assembly areas should be planned within a maximum walking distance of 500 meters of settlements, and should have a topography that permits easy and safe access to all segments of society, being within a 15-minute walk for also the elderly and children (Tarabanis & Tsionus, 1999). Roads that are less than 7 meters wide are at high risk of closure (98%) in the event of a disaster (JICA & IBB, 2002), and so this should be taken into account when assigning such areas. Along with transportation, other technical infrastructures (natural gas, drinking water, sewerage network, rainwater, etc.) should be made resilient against various disasters.¹⁸

Another crucial criterion when determining the location of EAAs is topography, soil type, climatic features, and geological and geomorphological features. In the criteria defined by AFAD, while describing the determination of flatlands as assembly areas, it is suggested that the ideal slope value should be in the range of 2–4 percent in order to prevent rainwater from accumulating in the area (Çınar et al. 2018). Of the places to be determined as muster points, fault lines, stream beds, sand dunes, swamps and valley floors, and areas prone to landslides, floods, tsunamis, liquefaction and rockfalls etc.

should be avoided as secondary hazards¹⁹ (Kadıoğlu, 2011). Assembly areas should also be planned considering the climatic conditions in diverse geographies. For example, taking into account the dominant wind direction to ensure air circulation in regions prone to high temperatures and humidity, and having adequate vegetation to provide shade are crucial design features that will increase the usability level of assembly areas when considered together with building densities and structure layouts. In addition, the possibility of unexpected/sudden climate changes should be taken into account, and assembly areas should be planned to include enclosed spaces that can protect people against such factors as excessive rainfall, extreme temperature, hail and storms within the first 72 hours following the disaster. As such, EAAs to be used in the event of a disaster, the emergency transportation routes, and the evacuation and temporary shelter areas should be designed to be least affected by urban risks.²⁰

As can be understood from the above, there are many criteria to be taken into consideration when planning EAAs, although this study is focused on the accessibility and adequacy criteria, as prominent factors when planning social and technical infrastructure areas.

DATA AND METHOD

This study of integrated disaster management and emergency assembly areas (EAAs) takes the Kadıköy district of İstanbul, which has the highest ratio of at-risk buildings in the city, as the case study area. Within the scope of this examination the accessibility and adequacy of EAAs is analyzed, while related to these two analyses, the social infrastructure areas in Kadıköy are examined as secondary assembly areas.

For the purpose of this study, the EAAs in Kadıköy defined by the Disaster and Emergency Management Presidency (DEMP) in the e-government portal, and the buildings (residential, social infrastructure or otherwise) and roads detailed on the base map of Kadıköy, provided by municipality, were used as data. The data was converted into a geographical information system (GIS) format to make it useable for the analyses.

¹⁹ T.C. İçişleri Bakanlığı, Afet ve Acil Durum Yönetimi Başkanlığı, Basın ve Halkla İlişkiler Müşavirliği. (2019). "Toplanma Alanını Öğren ki Canın Sağ Olsun-Basın Duyurusu". Accessed from: <https://www.afad.gov.tr/toplanma-alanini-ogren-ki-canin-sag-olsun>

²⁰ Macroform risks, urban texture risks, urban use risks, production loss risks, special risky area, special buildings risks, risks arising from dangerous uses, emergency officer distribution risks, open areas risk analysis (IDMP, 2003).

Table 1. Data and sources

Data and usage	Source
Emergency assembly areas	Disaster and Emergency Management Presidency
Residential buildings: In base map there is information of functions for each building. To calculate the population accessing to EAAs, residential buildings are use. Buildings with other functions were excluded.	Base map of Kadıköy
Social infrastructure buildings (secondary assembly areas): Schools, health units, mosques, indoor sports areas and official buildings.	
Roads: They are used for network analysis	
Roads narrow than 7 m: They were detected by measuring cross sections of each road in base map.	

It is important for all inhabitants to be able to access an EAA within 500 m, which is considered a walkable distance for them, including both children and the elderly, within 15 minutes (Tarabanis & Tsionus, 1999) for efficient disaster management. In this respect, for the accessibility analysis, the ratio of the population with access to an EAA within 500 m was calculated. For this calculation, firstly, the total construction area of the residential buildings in each neighborhood was divided by the population of the neighborhood in 2018 to provide the residential construction area per person for each neighborhood. Then, number of people living in each building²¹ was calculated by dividing construction area of each residential building by residential construction area per person in each neighborhood.

$$Na = Ca / (Cm / Nm)$$

Na : number of people living in “a” residential building

Ca : total construction area of “a” residential building

Cm : total construction area of residential buildings in “m” neighborhood

Nm : population of “m” neighborhood

To calculate the 500 m catchment area for each EAA for the accessibility analysis, a network analysis module in GIS was used. Instead of a buffer zone defining a catchment area based on distance as the crow flies, a network analysis is a spatial analysis method that gives more accurate results by using distances by road to define the catchment area (Tansley et al., 2015; Ye et al., 2012; Comber et al., 2008).²² The catchment area of all EAAs in Kadıköy and their populations were calculated through such a network analysis.

Additionally, an examination of road cross sections was made in the accessibility analysis, as roads narrower than 7 m have the high possibility of being blocked in the event of an earthquake (JICA & IBB, 2002). The EAAs and their 500 m catchment areas were thus reexamined superposed with roads narrower than 7 m.

²¹ There is no information about abandoned or vacant building, so it was assumed that all residential buildings are inhabited.

²² In this study, when the catchment areas of EAAs were calculated with a network analysis, it was found that 57% (261,125) of Kadıköy’s total population (458,638) had accessed to an EAA within 500 m; but when calculated for a buffer zone, it was found that 80% (365,760) of Kadıköy’s total population had accessed to an EAA within 500 m. It can be understood from these calculations that a buffer zone model that does not take road data into account will provide misleading results.

The EAA should be adequate for people living within 500 m. Studies of disaster management and EAAs, and the criteria defined in these studies, state that EAAs must be at least 500 m² if efficient disaster management is to be ensured, and with a minimum of 1.5 m² gross area for each person (JICA & IBB, 2002). Accordingly, an adequacy analysis was carried out in which the size of the EAA was divided by the number of people expected to access the area.

In these analyses it has been determined that not all inhabitants of Kadıköy have access to an EAA within 500 m, and so the accessibility and adequacy of the social infrastructures defined as secondary assembly areas (Zengin Çelik et al., 2017; Zengin Çelik et al., 2019) was analyzed.

Aside from being resistant to earthquakes, secondary assembly areas are of particular importance in the aftermath of those occurring in winter, providing shelter and such infrastructures as water, electricity and sewage. To analyze the accessibility of these areas, a 500 m catchment area for each building was determined with a network analysis, similar to the way in which the catchment areas of EAAs were determined. Then, to analyze the adequacy of these areas, the total construction area of these areas was divided by the population within the catchment area. In accordance with the standard for temporary shelter areas, at least 3.5 m² is to be allotted per person (Çınar et al., 2018). Finally, the total construction area of the secondary assembly areas, the population accessing these areas within 500 m and the construction area per person were evaluated on a neighborhood scale.

RESULTS

It was determined from the Disaster and Emergency Management Presidency system and the Kadıköy city guide that there are 73 EAAs in Kadıköy. The city guide²⁴ identifies 4 of these (coded as 7, 31, 47 and 67) as “main evacuation areas”. At the same time, having the appropriate qualities to meet the requirements of EAAs, the main evacuation areas were all accepted as EAAs, and all are used normally as parks.

As to the spatial distribution of these 73 EAAs, the neighborhoods of Koşuyolu and Acıbadem located in the northwest of the district; and Merdivenköy, Sahrayıcedit and 19 Mayıs, located in the northeast, draw particular attention. Furthermore, the Eğitim neighborhood has more EAAs than the others. On the other hand, in the neighborhoods like Rasimpaşa, Caferağa, Osmanağa, Hasanpaşa located in the historical center where there is agglomeration of commercial facilities; and in the neighborhoods in the east, like Erenköy, Suadiye and Bostancı, the number of EAAs is low (Figure 2).

EAAs must be at least 500 m² in size (JICA & IBB, 2002), and 71 of the 73 EAAs in Kadıköy are larger than 500 m². The EAA in Göztepe coded 30 and the EAA located in Feneryolu coded 46 are both between 400 and 500 m².

²⁴<https://webgis.kadikoy.bel.tr/keos/>

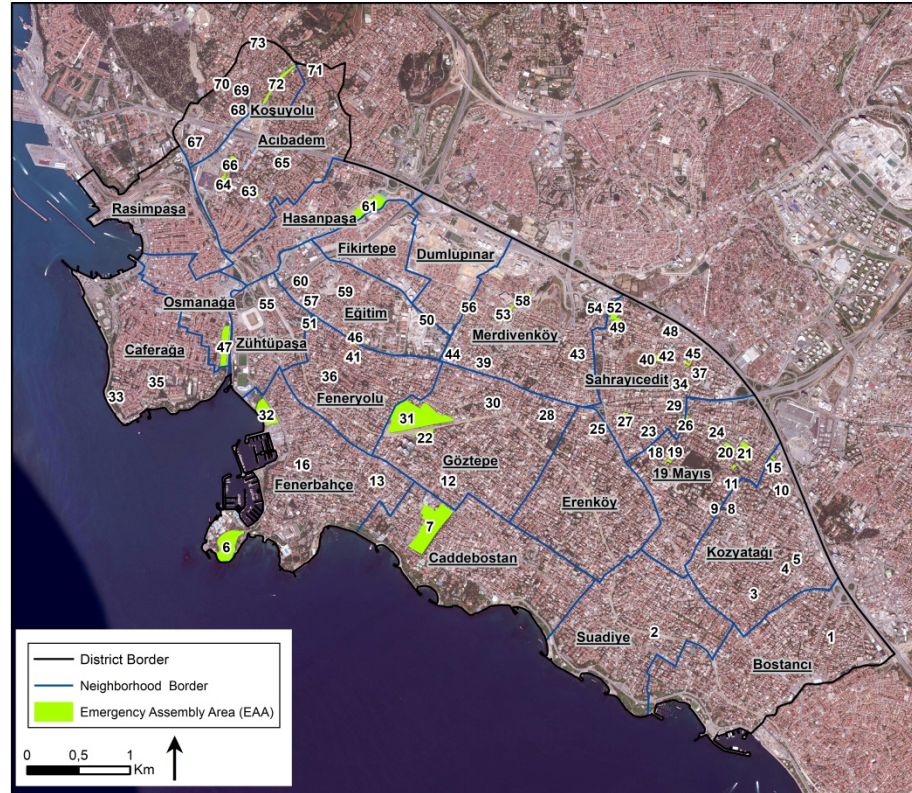


Figure 2. Spatial distributions of EAAs in Kadıköy

To determine the 500 m catchment area of each EAA and the population within the area, a network analysis on GIS was made.

The population of Kadıköy was recorded as 458,638 in 2018, and it was determined that 261,125 have access to an EAA within 500 m, meaning 57 percent of the total population have access to an EAA within 500 m. It was further found that the 500 m radius catchment areas cover 60 percent of the district.

As stated previously, planning EAAs on a neighborhood scale is crucial both for easy recognition and accessibility. At the neighborhood level, the ratio of the population with access to EAAs within 500m to neighborhood population is greater than 80 percent in Merdivenköy, Eğitim and Koşuyolu, differentiating these neighborhoods from the others in the district. In the Rasimpasa, Erenköy, Caddebostan, Bostancı, Osmanağa, Suadiye and Hasanpaşa neighborhoods, where there are fewer EAAs, but which are home to one-third of Kadıköy's population, this ratio is less than 40 percent. The most disadvantaged neighborhood is Rasimpasa, where there are no EAAs, containing mostly commercial and service buildings, and where the ratio is less than 1 percent (Figure 3; Table 1).

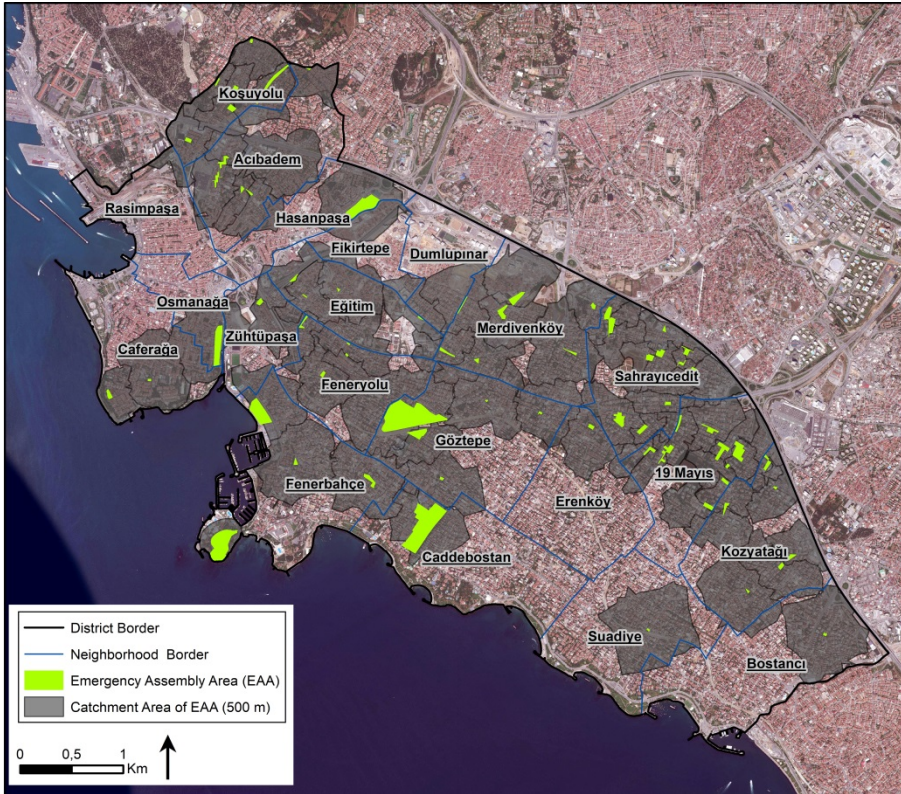


Figure 3. Spatial distribution of 500 m catchment areas of EAs in Kadıköy

An important factor in efficient disaster management is the width of the roads providing access to EAAs, as roads that are likely to become blocked in the event of an earthquake (JICA & IBB, 2002) can prevent access to EAAs. Accordingly, the presence of roads serving EAAs that are narrower than 7m is examined by superposing in GIS.

As seen in Figure 4, access to the EAAs coded 33, 35 and 37 in the Caferağa and Osmanağa neighborhoods, the historical center of Kadıköy, is mostly via roads narrower than 7 m, and so access to these EAAs can be considered problematic. All the other EAAs are served by roads that are both narrower than 7 m and wider roads.

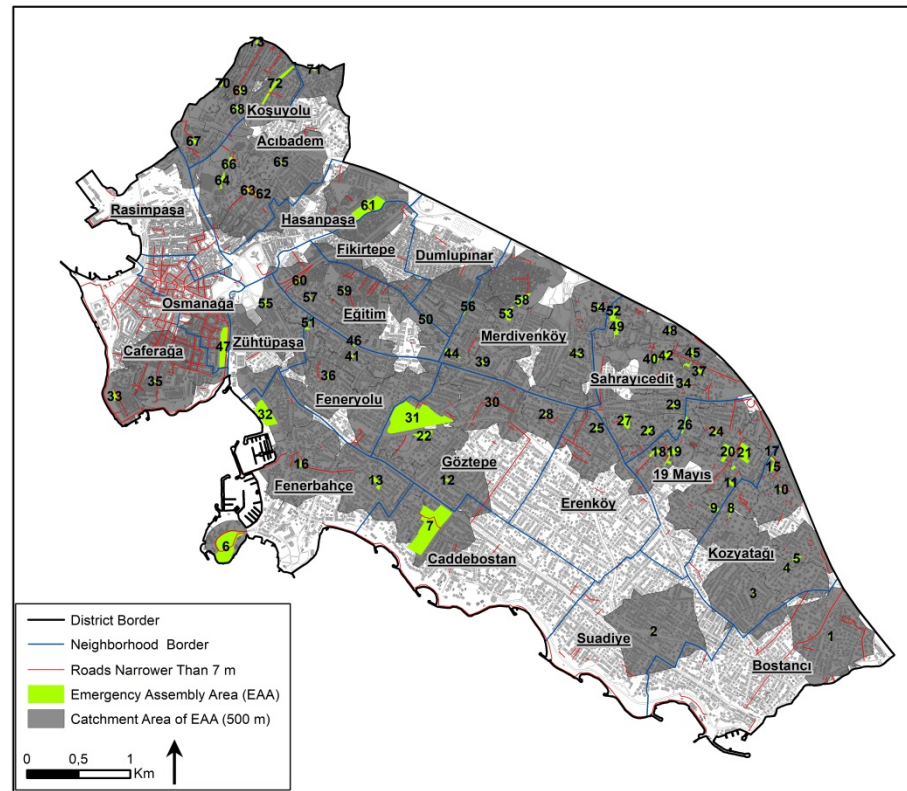


Figure 4. EAAs, catchment areas and roads narrower than 7 meter in Kadıköy

To determine if the EAAs provide adequate area for the population residing within 500 m, a adequacy analysis was carried out.

As stated previously, 57 percent (261,125) of the population of the district has access to an EAA within 500 m, although only 27 percent of the population (70,119) is within 500 m of an EAA of adequate area (1.5 m² gross area per person), amounting to 15 percent of Kadıköy's population.

The EAAs that provide adequate area for the population within their catchment areas are densely located in the Koşyolu and Sahrayıcedit neighborhoods; where 70 percent and 40 percent of the population, respectively, have access to adequate EAAs within 500 m. Additionally, the six largest EAAs, coded 31, 7, 6, 61, 32 and 47 (of which 31, 7, 61 and 47 are evacuation areas) in Kadıköy, provide adequate area for the population of their catchment area. These EAAs are located in the Hasanpaşa, Fikirtepe, Feneryolu, Zühtüpaşa and Osmanağa neighborhoods where the ratio of the population that can access adequate EAAs is greater than 20 percent. In contrast, this ratio is lower than 3 percent in the Bostancı, Suadiye, Dumlupınar, Eğitim, Rasimpaşa, Kozyatağı and Erenköy neighborhoods, which are home to 35 percent of the population of the district (Figure 5; Table 2).

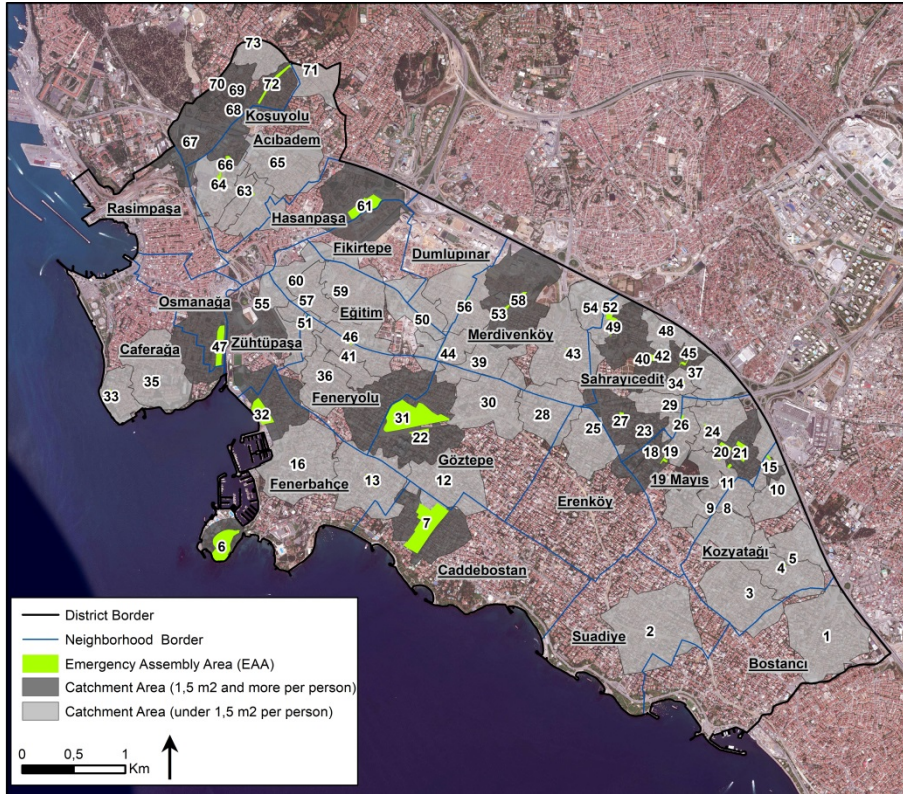


Figure 5. Adequacy analysis of EAAs in Kadıköy

Table 2. Catchment area, population and area per person of each EAA in Kadıköy

Code ² 5	Name of the EAA	Area (m ²)	Population of 500 m catchment area	Area per person (m ²) ²⁶
2	Suadiye İstasyon Park	594	9.905	0,06
30	Nadirağa Park	437	6.790	0,06
3	Firuzan Toprak Park	765	10.212	0,07
65	Kuruçeşme Park	552	7.295	0,08
1	Menekşe Park	848	9.561	0,09
35	Şair Nefi Park	730	7.789	0,09
59	İnönü İlkokulu Karşısı Park	568	5.899	0,10
46	Kuyubaşı Park	453	4.471	0,10
28	Karanfil Sokak Park	801	5.946	0,13
57	Kemal Sunal Park	621	4.484	0,14
12	Yeşilçeşme Park	1055	6.148	0,17
43	Özlem Sokak Park	1916	8.369	0,23
62	Acıbadem Muhtarlık Park	1251	5.279	0,24
56	Dumlupınar Park	1713	6.819	0,25
50	Dumlupınar Muhtarlık Park	745	2.723	0,27
71	Üçgen Park	900	3.281	0,27
16	Behice Yazgan Park	1645	5.833	0,28
4	Barış Park-1	2155	6.362	0,34
10	Ilgın Park	836	2.399	0,35
25	Gardenya Çıkmazı Park	2024	5.229	0,39
36	26 Mart Park	1879	4.853	0,39
39	Leylak Park	1444	3.469	0,42

²⁵ 7, 31, 47 and 61 are also evacuation area

²⁶ The table is sorted by this column.

41	Feneryolu Muhtarlık Park	659	1.472	0,45
63	Acıbadem Park	1379	2.248	0,61
73	Mimoza Park	944	1.495	0,63
54	Eylül Park	1978	3.015	0,66
17	Sarı Kanarya Park	1124	1.649	0,68
29	Dostluk Park	1841	2.558	0,72
8	Ahmet Taner Kışlalı Park	2889	3.948	0,73
37	Halk Sokak Park	2239	3.039	0,74
48	Hilton Otel Yanı Park	1226	1.486	0,82
11	Kozyatağı Karakol Karşısı Park	2463	2.948	0,84
13	Çamlık (Ihlamur) Park	5546	5.937	0,93
24	Ekin Park	4661	4.878	0,96
34	Mengi Park	1729	1.629	1,06
64	Sokullu Park	3714	3.355	1,11
14	Ormen Sitesi Park	1187	1.048	1,13
60	Dayanışma Park	2152	1.893	1,14
5	Baş Park- 2	2774	2.294	1,21
26	Akasya Park	3189	2.615	1,22
44	Çınar Park	3310	2.696	1,23
33	Moda Park	3215	2.591	1,24
9	Zübeyde Hanım Park	3791	2.841	1,33
51	Sanat Park	3075	2.255	1,36
67	Öğretmenler Park	2193	1.311	1,67
55	İntaş 23 Nisan Park	2657	1.574	1,69
27	Milli Hakimiyet Park	9668	5.362	1,80
53	Onay Sitesi Park	6463	3.564	1,81
18	Kuşluk Park	3589	1.763	2,04
42	Doğa Park	4469	2.169	2,06
58	Çamlık Park	8294	3.928	2,11
70	Şeker Park	1233	577	2,14
38	Arapgirli Park	1658	627	2,64
22	Demokrasi Park	10287	3.265	3,15
23	Defne Park	4359	1.279	3,41
19	19 Mayıs Park	7524	2.163	3,48
47	Yoğurtçu Park	23461	6.483	3,62
68	Manolya Park	3747	1.027	3,65
66	Jan. Er Cemal Tüfekçioğlu Park	4668	1.253	3,73
49	Merdivenköy Koru Park	8232	1.985	4,15
72	Koşuyolu Park	11736	2.563	4,58
40	23 Nisan Park	3902	822	4,75
20	Hürriyet Park	8995	1.869	4,81
61	Yeni Salı Pazarı	32294	5.579	5,79
52	Merdivenköy Park	6036	981	6,15
15	Afet Eğitim ve Biliçlendirme Park	3106	422	7,36
21	Kriton Curi Park	13928	1.768	7,88
69	Yaşam Park	3184	404	7,88
45	Erguvan Park	3378	404	8,36
32	Kalamış Park	28535	3.129	9,12
31	Özgürlük Park	108318	10.382	10,43

7	Göztepe 60. Yıl Park	88215	3.418	25,81
6	Fenerbahçe Park	48446	48	1009,30
	Total	541591	261.125	2,07

Table 3. Catchment area, population and area per person of EAAs at the neighborhoods scale in Kadıköy

Neighborhood	Population	Population accessing EAA in 500 m		Population accessing EAA that provides 1,5 m ² for each person within its 500 m catchment area	
		Population	Ratio to neighborhood population (%)	Population	Ratio to neighborhood population (%) ²⁷
Bostancı	31.585	11.603	37	0	0,0
Suadiye	23.690	9.340	39	0	0,0
Dumlupınar	11.718	5.537	47	0	0,0
Eğitim	13.525	11.774	87	0	0,0
Rasimpaşa	13.898	104	1	43	0,3
Kozyatağı	35.230	26.182	74	421	1,2
Erenköy	32.900	6.406	19	797	2,4
Acıbadem	30.041	20.728	69	1.683	5,6
Fenerbahçe	18.166	12.969	71	2.142	11,8
Caferağa	23.379	13.286	57	2.913	12,5
Göztepe	37.013	22.280	60	6.435	17,4
Caddebostan	19.221	4.673	24	3.413	17,8
19 Mayıs	30.964	20.039	65	6.266	20,2
Hasanpaşa	15.241	6.019	39	3.449	22,6
Fikirtepe	9.069	4.189	46	2.140	23,6
Merdivenköy	33.582	28.864	86	7.928	23,6
Feneryolu	24.327	18.538	76	7.595	31,2
Zühtüpaşa	8.007	4.668	58	2.655	33,2
Osmanağa	8.487	3.165	37	3.170	37,3
Sahrayıcedit	30.901	23.882	77	13.673	44,3
Koşuyolu	7.694	6.879	89	5.396	70,1
Total	458.638	261.125	57	70119	15,3

²⁷ The table is sorted by this column.

Almost half of the district population has no access to an EAA within 500 m, and so social infrastructure areas should be evaluated as potential secondary assembly areas. Such areas provide shelter, which is important particularly in the aftermath of earthquakes that occur in winter (all EAAs in Kadıköy are used as parks, and so have no covered areas), and such basic infrastructure as electricity and water. It was ascertained in the aftermath of the Elazığ-Malatya earthquake, which occurred in the winter months of 2020, that covered areas are crucial

for efficient disaster management. Accordingly, 500 m catchment areas of each of the social infrastructure buildings were determined, along with the population living therein. These assembly areas must not pose a risk, and four of the buildings were excluded from the study, being considered hazardous.

It was determined from a network analysis of road data made in GIS that the catchment areas of the secondary assembly areas cover almost the entire district (95%), serving 99 percent of the district's population. On the other hand, in the area of the Zühtüpaşa, Fenerbahçe and Caddebostan neighborhoods falling outside the catchment area is higher than for other neighborhoods, with 13 percent of the population of the Zühtüpaşa neighborhood, 8 percent of Fenerbahçe and 3 percent of Caddebostan falling outside of the catchment areas. These areas are also notable for being outside the catchment areas of EAAs.

To be considered adequate, the covered area within secondary assembly areas should provide at least 3.5 m² as standard for each person within their catchment area (Çınar et al., 2018). For the district as a whole, this value was determined as 3.9 m², although in 12 out of the 21 neighborhoods in the district, this value is less than 3.5 m². In the Fikirtepe, Sahrayıcedit, Merdivenköy and Dumlupınar neighborhoods, the entire population can access secondary assembly areas within 500 m, but these areas are not considered adequate in terms of size. In contrast, this value is 10 times higher than the standard in the Eğitim neighborhood, due to the presence of vast regional social infrastructures in the form of a university and a state hospital (Figure 6; Table 4).

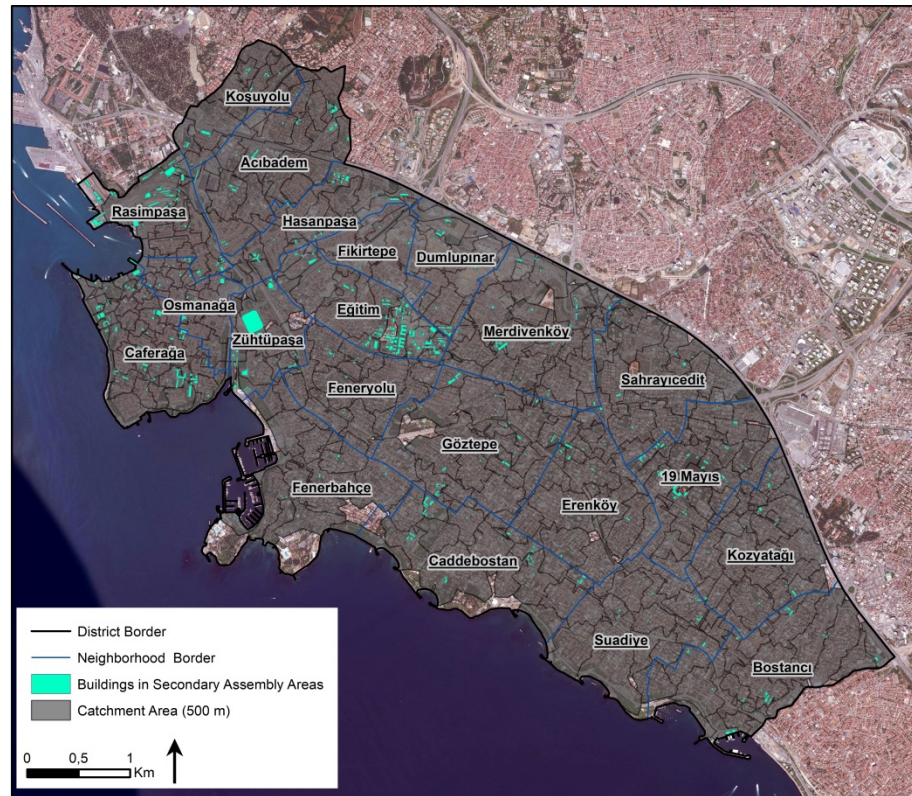


Figure 6. Spatial distribution of secondary assembly areas and their catchment areas in Kadıköy

Table 4. Catchment area, population and area per person of secondary assembly areas at the neighborhoods scale in Kadıköy

Neighborhood	Population	Population accessing secondary assembly area in 500 m		Total construction area of secondary assembly areas buildings (m ²)	Construction area per person (m ²) ²⁸
		Population	Ratio to neighborhood population (%)		
Fikirtepe	9.069	9.069	100,0	1.929	0,21
Feneryolu	24.327	24.228	99,6	15.451	0,64
Sahrayıcedit	30.901	30.886	100,0	21.402	0,69
Fenerbahçe	18.166	16.681	91,8	14.184	0,85
Suadiye	23.690	23.580	99,5	23.059	0,98
Kozyatağı	35.230	34.989	99,3	39.040	1,12
Erenköy	32.900	32.442	98,6	36.544	1,13
Bostancı	31.585	31.460	99,6	54.480	1,73
Göztepe	37.013	36.705	99,2	76.023	2,07
Merdivenköy	33.582	33.579	100,0	77.355	2,30
Dumlupınar	11.718	11.713	100,0	30.480	2,60
Acıbadem	30.041	30.003	99,9	89.049	2,97
Osmanağa	8.487	8.487	100,0	31.491	3,71
19 Mayıs	30.964	30.787	99,4	126.274	4,10
Caddebostan	19.221	18.549	96,5	81.338	4,39
Caferağa	23.379	23.372	100,0	120.017	5,14
Hasanpaşa	15.241	15.234	100,0	86.345	5,67
Zühtüpaşa	8.007	6.964	87,0	64.110	9,21
Koşuyolu	7.694	7.694	100,0	99.474	12,93
Rasimpaşa	13.898	13.898	100,0	184.743	13,29
Eğitim	13.525	13.441	99,4	497.374	37,00
Total	458.638	453.761	98,9	1770162	3,90

²⁸ The table is sorted by this column.

CONCLUSION

Integrated disaster management, and relatedly, EAAs, are subjects of considerable discussion in Turkey, where earthquakes are an inevitable reality. In the urban planning context, the site selection and size, and relatedly, the accessibility and adequacy of EAAs are the crucial topics of analysis. In İstanbul, where the risk of earthquake is high, and where the one-fifth of the country's population resides, such studies of EAAs are of particular importance. In the study, the accessibility and adequacy of EAAs in Kadıköy, as the district of İstanbul with the highest ratio of at-risk buildings, were examined. Besides analyzing accessibility of EAAs as in other studies in the relevant literature, this study tries to contribute literature by adequacy analysis and by using network analysis for accessibility.

Within the scope of the analyses, the prominent results for Kadıköy and suggested solutions to the problems are presented below:

- There are 73 EAAs in Kadıköy.
- Some 57 percent of the district's population resides within 500m of an EAA, and so new EAAs should be planned for the rest of the population. The problem should be addressed first in the Rasimpaşa, Erenköy, Caddebostan, Bostancı, Osmanağa, Suadiye and Hasanpaşa neighborhoods, as the most disadvantaged.
- The EAAs coded 33, 35 and 47 in the Caferağa and Osmanağa neighborhoods are accessed via roads that are narrower than 7 m, and so alternative EAAs and access routes should be determined in these neighborhoods.
- Three-quarters of the population have access to EAAs within 500 m that are inadequate in terms of area. This is a general problem for all neighborhoods in the district. To address this problem, the standard should be followed across the district, and firstly in the Bostancı, Suadiye, Dumlupınar, Eğitim, Rasimpaşa, Kozyatağı, Erenköy and Acıbadem neighborhoods, where less than 10 percent of the population have access to EAAs within 500 m.
- Almost the entire population of the district has access to secondary assembly areas within 500 m, although the area provided in these areas in the Fikirtepe, Feneryolu, Sahrayıcedit, Fenerbahçe, Suadiye, Kozyatağı, Erenköy, Bostancı, Göztepe, Merdivenköy, Dumlupınar and Acıbadem neighborhoods falls short of the standard (minimum 3,5 m² per person). Accordingly, these areas should be increased.

This study of Kadıköy provides important clues to the efficient disaster management of both other districts in İstanbul and other settlements across Turkey. For efficient integrated disaster management, EAAs should be determined; and the accessibility and adequacy of existing EAAs should be analyzed at settlement scale. When the EAAs have been determined, their accessibility should be analyzed with a network analysis to ascertain the suitability of the access roads. After all, EAAs that are adequate, accessible to all inhabitants and accessed by roads wider than 7 m; and secondary assembly areas that provide shelter and basic infrastructures should be planned.

To realize these suggestions, standards related to size, accessibility and adequacy for both EAAs and secondary assembly areas must be defined in the legal regulations and land-use plans. The Spatial Plan Preparation Regulation²⁹ defines a legend for plans of different hierarchies, and the minimum size for social and technical infrastructure areas like schools, health units, etc. As such, to realize the decisions contained within upper scale plans related to integrated disaster management, it is necessary to define a legend for EAAs in local land use and detailed local plans in which the social and technical infrastructures are shown.

²⁹<https://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.19788&MevzuatIliski=0&sourceXmlSearch=PLAN%20YAPIMINA%20A%C4%B0T>

This research analyzed the accessibility and adequacy of EAAs; however, as stated at the literature review, in the wake of a disaster, people should be transferred to the main evacuation area and temporary shelter area from the EAAs. For both evacuation areas and temporary shelter areas, accessibility and adequacy analyses should be carried out in a new research. Additionally, the study has not analyzed the natural and design properties of EAAs, and so in future researches it may be beneficial to analyze both the natural properties of such areas in terms of geology, soil and slope, and the design properties, such as usability, and accessibility for all, especially such disadvantaged groups as the handicapped and the elderly.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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The authors declared that this study has received no financial support.

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Ethics committee approval was not required for this article.

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In this research, the necessary permissions were obtained from the relevant participants during the research.

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The Continuity of Vernacular Architecture amidst Changes, Village Shyopura, India

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Abstract

Purpose

The purpose of the paper is to understand the spatial structure with respect to permeability of vernacular/rural architecture of Rajasthan state in India. It also attempts to investigate the relationship of courtyard as an important aspect of rural housing.

Design/Methodology/Approach

This paper examines the typology of rural houses of a Rajasthan village built over more than a century. It justifies the continuity of typology through activities helping in understanding the vernacular environment as a concept in popular or domestic rural architecture. With the help of space syntax methods the spatial pattern and social relationship has been understood. Paper is divided in four major parts. The first part discusses the concept of vernacular along with the contextual village. The second part discusses the methodology of space syntax and method of making justified graph. The third part discusses the data analysis. Finally the conclusions are discussed. The research makes use of space syntax methodology with the help of Justified Graphs of 10 different houses of Village Shyopura in Mandawa town of district Jhunjhunu in Rajasthan state of India. These houses were built during past 125 years.

Findings

The results of the analysis show how the traditional typological approach to housing forms remains still relevant as an example of vernacular architecture. The study's aim is to avail insight into the continuity of vernacular traditions with specific interest and socio-cultural relation of spatial formation of courtyard in houses the qualitative and quantitative analysis of the study have been combined together to reach at the conclusions.

Research Limitations/Implications

Due to time limit only 10 houses have been studied in hot dry climatic region of India. There continuity of vernacular architecture can be tested by using the similar methodology use3d here to establish stronger relevance of the argument.

Social/Practical Implications

The research establishes the continuity, but on a slight note also mentions of changing architectural arrangements of vernacular houses. Conservation architects have potential work to do in such areas.

Originality/Value

The study has been conducted and tested with a unique methodology adopted in India

Keywords: Vernacular, houses, courtyard, space syntax, genotype

INTRODUCTION

The Vernacular and traditional architecture is practiced by common man since time immemorial. This practice is a timeless way of building houses in villages in India. Most vernacular and traditional buildings are considered as 'timeless' meaning that their forms and styles are accepted as 'objects' that do not change over time. This leads to rigid definitions of domestic architecture by assigning definite cultural meanings to physical forms. While vernacular domestic spaces naturally represent the culture and society that they are constructed in, where these are interpreted in the light of fixed notions of 'culture' and 'tradition', the possibility that 'vernacular' does not necessarily mean 'timeless' or 'unchanging' is left unexplored.

International Council on Monuments and Sites (ICOMOS) published a charter on vernacular heritage describing general issues, principles of conservation, guidelines in practice of vernacular conservation. The vernacular has been defined by the in charter on the built vernacular heritage in 1999 as "A manner of building shared by the community; A recognisable local or regional character responsive to the environment; Coherence of style, form and appearance, or the use of traditionally established building types; d) Traditional expertise in design and construction which is transmitted informally; An effective response to functional, social and environmental constraints; f) The effective application of traditional construction systems and crafts" It is further described as a "traditional and natural way by which communities' house themselves" (ICOMOS, 1999, p 1).

Although, in the period of very high technological advancement, it may not be a glamorous idea the lean back on the traditional knowledge bank yet, for architects and designers of housing stock all over the world the traditional practices are important lessons in architectural practices in such areas. For many it is a nostalgic indulgences to explore more of traditional architecture and craftsmanship to meet the professional challenges (Kazimee, 2008).

Flexible and adoptable design is another hallmark of the vernacular mode of building. Housing that provides freedom of choice and is easily adoptive to changing needs and desires of the families over time are sustainable"(Kazimee, 2008, p 9). Kazimee admits that vernacular architecture has a region specific logic of construction. It infuses the intelligent use of locally available building material and craftsmanship and skilled workforce labour. As a result of which the housing is best affordable besides making such practices widely acceptable. In India there are 4 different climatic regions namely Hot and Arid Zone, Hot and Humid Zone, Warm and Humid Zone and Cold Zone (BIS 3792., 1978). Rajasthan falls under the hot and dry climate in India. The next part presents an overview of case study region in the backdrop of historical advances.

In an interview with Amos Rapoport on vernacular architecture, he defined vernacular architecture as follows Rapoport elaborates that

high-style architecture is just a bit more elaborate. He establishes that there have always been both a “move-up” from vernacular to high-style, and a “trickle down” from high-style to vernacular and is not easy to separate them (Rapoport, 1979). Rapoport is of the opinion that primitive and vernacular buildings have co-existed, at one time or another and everywhere. However their manifestations depend upon various other factors such as: “the differences in culture, rituals, ways of life, and social organization, climates and landscapes, and materials and technology available, while the similarities are evidence not only of areas where some or all of these factors have coincided, but also of some basic constancies in man’s needs and desires” (Rapoport, 1979).

CONTEXT

Rajasthan

Rajasthan was formed on 30 March 1949 as a state of India (Figure 1 & 2). A north western state of India comprises most of the wide and inhospitable Thar Desert (also known as the "Great Indian Desert"). It borders Pakistan on west, Punjab on north, Haryana on and Uttar Pradesh on north east; and Madhya Pradesh on south east sand Gujarat on southwest. There are 33 districts, 244 tehsils, 185 statutory towns and 44, 795 villages in Rajasthan Sheopura is one of the villages in Mandawa town in district Jhunjhunu. It is district is one of the five districts, those comes under Jaipur division. There are 6 Tehsil headquarters in Jhunjhunu district ([http://www.rajcensus.gov.in/.](http://www.rajcensus.gov.in/))

Jain discusses the regions by citing Deryck O. Lodrick' and mentions that region can be identified in two ways. One is the perceived space or experienced region which `represents a people's shared reaction to their particular segment of space, or specific features associated with that space, that leads to an awareness of its distinctiveness.



Figure 1. Location of State of Rajasthan (Image by Google)



Figure 2. Location district Mandawa, Jhunjhunu (Image by Goglemaps & maps of India)

Shekhawati-Mandawa

The state is divided into Marwar Region, Shekhawati Region, Merwar Region, Dundhar Region, Mewat Brij Region, Godwad Region, Mewar Region, Hadoti Region and Vagad Region (Jain, 2002)

Mandawa fall under Shekhawati region of Rajasthan (Figure 3 & 4). As history goes Rao Shekha, founded the Shekhawati clan. Hence the area ruled by them is known as Shekhawati. Habitation of Shekhawati can be traced back to the Harappan times with traces of Saraswati River flowing through parts of the region.

The flourishing trade activities falling enroute Bikaner and Jaipur in Shekhawati region encouraged merchants to settle in their newly established towns. The mighty Thakurs promised them economic benefits and security. Thus this was curtain raiser for a great era of building activity in Shekhawati (Shrivastva,2008).

Thus many villages got established and developed a symbiotic relationship with the town providing for the primary needs of the town and, the town in turn provided the villages with amenities of life. Nawal Singh founded Nawalgarh as his separate kingdom at the site of the village Rohelli at site of already established fort named Balaqila in 1737 AD. He expanded the village of Mandu Jat to the level of a town which later came to be known as Mandawa and founded a fort in 1756 AD (Shrivastava, 2008). Mandawa is a town situated 190 kilometer of Jaipur in the north in Jhunjhunu district of Rajasthan in India. It comprises important a part of Shekhawati region. Mandawa is one of the twelve statutory towns of district along with Fatehpur, Dhunlod, Nawalgarh etc; (Directorate of Census Operations Rajasthan, 2011). Mandawa is known for its havelis and forts that qualify its vernacular architecture,

the parallel of which are available in entire geographical region of Rajasthan in one form or the other. Mandawa is a fortified town that prospered on the basis of mercantile activities (Jain, 2002). Fatehpur, Nawalgarh are nearby towns with similar growth history.

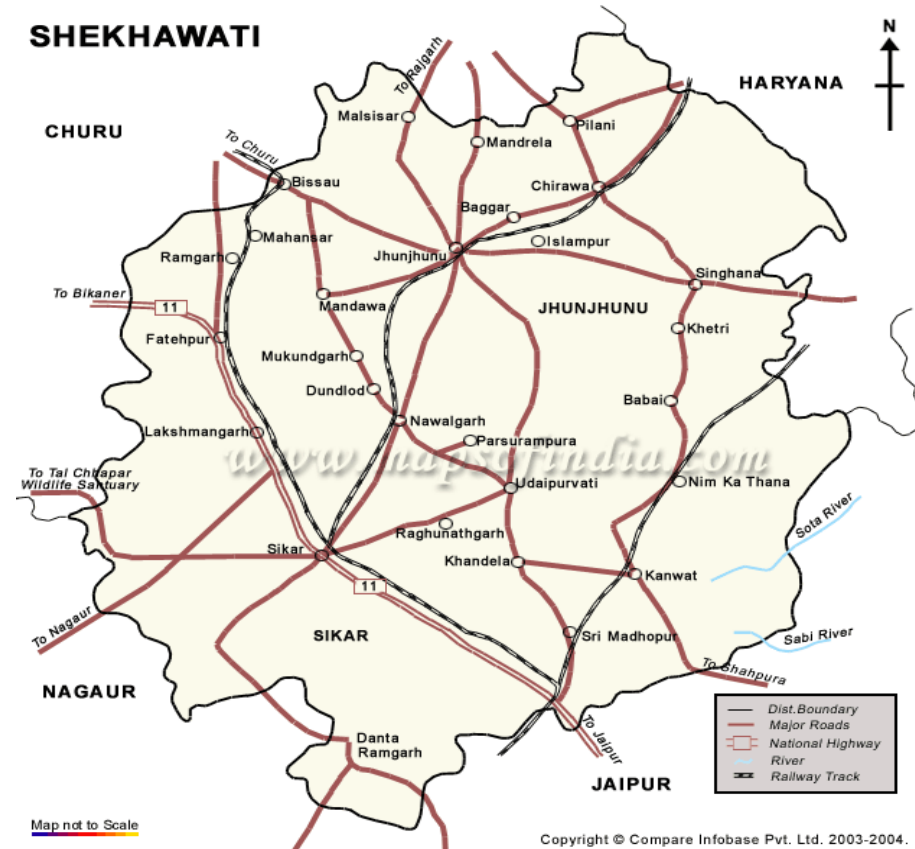


Figure 3. Shekhawati Regions (Image by www.mapsofindia.com)



Figure 4. Shekhawati Regions Images (Image by Google images)

The town grew around the main bazaar street with the fort located close to it on raised ground forming the core. The town has many beautiful havelis, shops and temples the walls and ceiling of which are embellished with some of the most exquisite frescoes (Sinha & Varshney, 2017).

The vernacular architecture of the Rajasthan provides a comfortable shelter against the harsh climatic conditions of the region (Verma et al, 2020). The vernacular architecture of Rajasthan has not been studied in the quantitative evaluation method through justified Graph method. This study is carried out on the vernacular buildings of village Shyopura in near Mandawa town of Jhunjunu District of Rajasthan India. A study of 10 vernacular residences in five categories (period of construction) namely: from 1900- 1925, 1925-50, 1950-75, 1975-2000, after 2000 were studied and analysed.



Figure 5. Time Line /period of houses in Shyopura (Drawing by Author-Studio work)

The objective of the investigation was to understand and establish the continuity of vernacular design elements with respect to significance of courtyard. The results show that their still exist the significance of courtyards as one of major design elements of a house design in a village (Figure 5 & 6).



Figure 6. Location of Courtyard houses Shyopura (Drawing by Author-Studio work)

Although the traditional architecture of hot dry climatic region (Rajasthan) of India has been studied in detail in terms of climatic responsiveness (Verma et al, 2020). The familiar elements of regional architectural styles are verandahs, balconies, courtyards. The vernacular houses/ havelie's of Mandawa region are typical examples of buildings adapted to the hot and dry climate.

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Vernacular components

The Basic form of house is the row house, an elongated rectangular space with central courtyard and single story have flat roofs supported on wooden members. All the space and most of daily activity are concentrated around the courtyard and organized in a system from public space to most Private spaces.

Courtyard

According to Verma et al the courtyard built form is a very suitable form for hot arid regions. This is the main reason that it forms one of the major components of vernacular design in Indian villages of hot dry region. They are usually centrally placed and are completely opened to the clear sky or partially shaded with overhangs/chhajjas in some of the cases (Verma et al, 2020). The courtyards are place that have 24 hour activity cycle. Initially the village was inhabited by 3 families. The later stage the village was divided in three parts. The belief is that puja in in the court yard. The toilets are kept preferably outside the main building. The village also has an anganwadi, graveyard, two bus stands and a water tank that is replenished by tankers.

The stone is the easily available material. The walls are thick and heavy in older houses. The stone masonry buildings are heavy structures and store larger amount of heat due to large heat capacities and creates a larger time lag (Agrawal, Jain, & Ahuja, 2006). This enables to keep the inside comfortable when it is very hot outside. This helps in keeping the inside cool during daytime when it is most inconvenient outside. The evidences of existence of courtyard can be traced back to 3300 BC. Courtyard houses have been a typology of houses in almost all countries of hot and dry region across all over globe. Climatically courtyard has remained one of the most significant part of lavish Havelis and vernacular houses. Traditionally the activities of family revolve around courtyard. Besides acting as an important spatial component of a house it was an important social space (Dote et al., 2018).

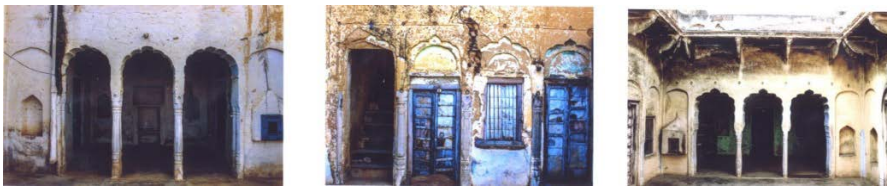


Figure 7. Images of courtyard (Image by Author)

The vernacular houses which are derivation of havelis have courtyards of smaller sizes are one of the most fascinating characteristics. Various rituals and social gatherings take place in such open space / courtyard. Courtyards also act as the main connectivity to various spaces of house inside and outside. The walls around the courtyard are punctuated with arches, niches and embellished with cornices and chhajjas (Figure 7). Thus the courtyard is a transitional space between the public and the private spaces of the haveli or courtyard houses. Women and making the household chorus perform everyday activities in the courtyard and the verandahs around it. The courtyard in the night is used a sleeping in pons area under cool sky (Verma et al, 2020). The open to sky courts brings nature inside the house and create an inner microcosm of the family. In the evening time family members sits together and sleeping in summer time and throughout day most active space.

Roof

The roof is spanned with the help of stone slabs and is usually flat. The earthen pots are layered to create an insulation layer which is subsequently finished with lime mortar. Flat roofs with insulation layer- the roofs are constructed flat with stone slabs jointed with lime mortar (Figure 8).

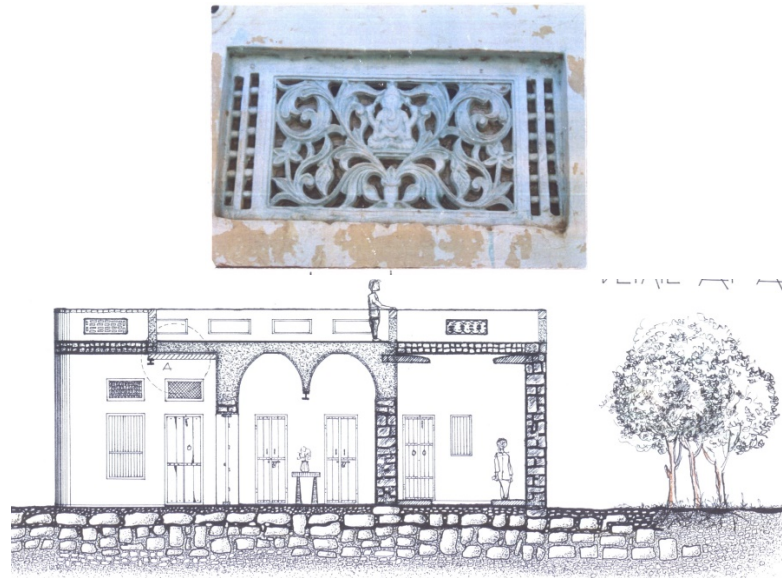


Figure 8. Roof Section and Jali image (Drawing by Author-Studio work)

Store, kitchen and service area

One room is generally treated as store. This is usually one of the rear placed room It is usually attached with a room for and there is no ventilation. It is used for storage purpose. The households have two kitchens generally. Ladies use outdoor kitchen in morning and evening. The Research analysis uses and classify the various spaces of the houses under three broad categories as identified by Amorim (Amorim, 1997) under the

- Social sector - There are living i.e Baithak, courtyard, verandah. These spaces are the spaces where the visitors are entertained.
- Private sector - The spaces that fall in its domain are rooms, (bed rooms). These spaces are preferably are for private and personnel use by the inhabitants.
- Service sector - These sectors have store, toilets, staircase, and kitchen. The spaces for keeping cattle fall in this category (figure 9)

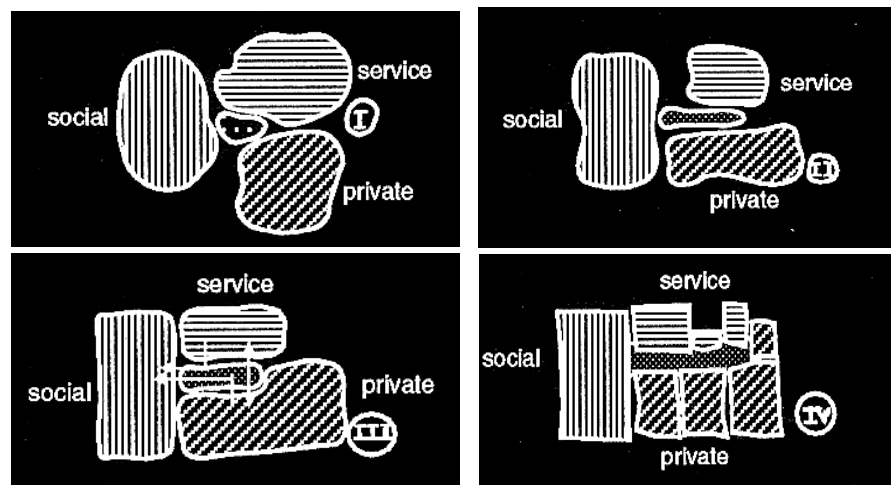


Figure 9. Classification of the key functional sectors (zones) of the house (Sketch by Amorim, 1997)

METHODOLOGY

Space Syntax

Space Syntax is an important and significant as an analytical tool to understand urban areas. It has its application in building analysis as well. Scholars have used this method to enable better understanding of various issues pertaining of urban and rural environment. Crime study, cognitive analysis, movement pattern, legibility in urban setting, social interface, museum and shopping area study, community & Neighbourhood, urban centers, culture and space-use, GIS and Accessibility, spatial perception of a house, configuring domestic space are some of the vital aspects related to urban and building design. Space syntax was founded by Prof. Bill Hillier and his colleagues at Bartlett School of Architecture in University College of London in the year 1984. Ever since its conception, it has gained wide spread recognition and has become an area of independent research and application.

A space is a system of interconnected units or subunits called as configuration of system. This network of interconnectivity does not take into account the metric distances, rather the topological depths are of significant importance for the description of entire system. This probably provides an objective and quantitative correlational measure of one unit with the rest of the system (Jiang, Claramunt, & Klarqvist, 2000). Space syntax analysis was used with the aim of understanding how social relations express themselves through spatial configuration, focusing on the morphology of spaces. Space syntax thus provides a different way of looking at spatial configurations which allows comparative results between different building structures (Monteiro, 1997).

Justified Graph

To develop a justified graph (Figure 10) first one has to draw axial map. The justified graph is made by using circle representing axial lines and each linking lines between circles represent nodes or intersections. Thus one can easily show each space on the map. The shape and size of justified graph completely depends on the density of network of streets/spaces and how interconnected the streets/spaces are. The shallow graph means that passing from one space to the other is easier. Whereas, the deeper graph represents the difficulty in accessibility.

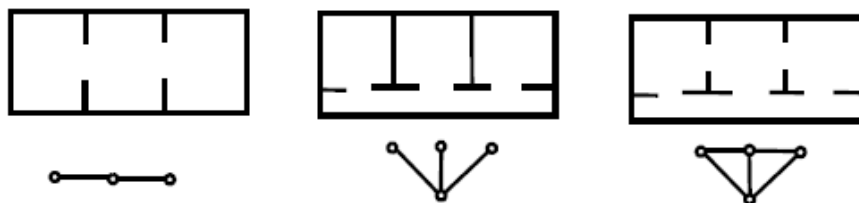


Figure 10. Justified Graph (Sketch by Jiang 2000)

“Firstly, Justified Graphs were created in which each space of the house is represented with a node and the access routes between each node as

links. This analysis was then used to measure the depth between each space to all other spaces within a building. The entrance of each house is taken as a reference point in order to define the 'deepness' or 'shallowness' of each space in relation to the rest of the configuration. Also, Space Type Analysis was used to define the number of connections of each space within the configuration". (Gozde, 2017, p 5) Finally, each analysis is mainly discussed through two main quantifiable measurements that are the Integration and Control values. The Integration value represents the degree to which a space is integrated globally within a configurational system.

The Justified Plan Graph or JPG technique was developed in the late 1970s and was further refined in next two decades. It was established as analytical means of undertaking qualitative and quantitative research into the spatial structure or permeability of buildings (Ostwald, 2011). The paper uses the Justified Plan Graph (JPG) method to construct a graphical, mathematical and theoretical analysis of the spatial configuration of the twenty-two rural / vernacular houses of village Sheopura in town Mandawa of Rajasthan. They are typological representative of courtyard houses with changing morphology over 125 years.

While the theory and use of the JPG is well developed (Bill Hillier; Julienne Hanson, 1986) , However, it has not been applied for the analysis of vernacular houses of Rajasthan. For the purpose of analysis software AGRAPH is used. While studying and analysis large number of apartments, AGRAPH WAS is developed BY Benedict Manum for his PhD-study at the Oslo School of Architecture and Design (Manum, Rusten, & Benze, 2005).

The connectivity graph image is drawn, then AGRAPH generates a "connectivity matrix" (listing whether nodes are connected or not) and an "internal distance matrix" by simple calculations on these matrixes, the Space Syntax parameters of the nodes are determined with the help of following.

AGRAPH calculates the parameters Control Value (CV), Total Depth (TD), Mean Depth (MD), Relative Asymmetry (RA) and the integration value.

Data Analysis

The JPG of the houses was made by inserting jpeg image of houses in the AGRPAH software and then running the analysis. Following is the terminology used for the construction of JPG of ten houses.

CY – Courtyard, Int CY – Internal Courtyard, Rear CY – Rear Courtyard, V – Verandah, Root- External Root space, BA – Baithak, CT Cattle space, ST – Staircase, S – Store, K – Kitchen, R – Room, Cor – Corridor, T – Toilet. "i values may be used in architectural analysis to understand the spatial structure relationship through development of an "inequality genotype", practice, an inequality genotype is a list of spaces in the JPG, arranged in order from highest to lowest i value. But in order to

interpret what this list means, we have to leave behind the mathematics and start to consider wider social and cultural factors that are part of graph theory” (Ostwald, 2011).

Case study – Houses

Houses during period 1900-1925 – An analysis (Figure 11)

Out of various examples one from each of five period categories is discussed. The spatial analysis is discussed as follows. The houses were located to have been constructed during the period 1900-1925.

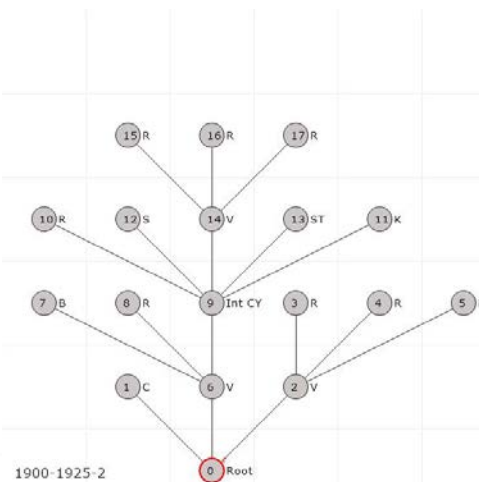
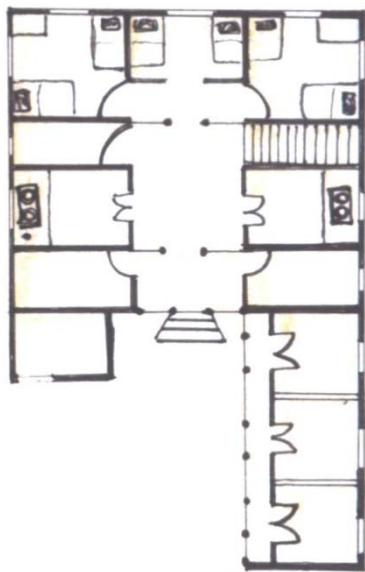
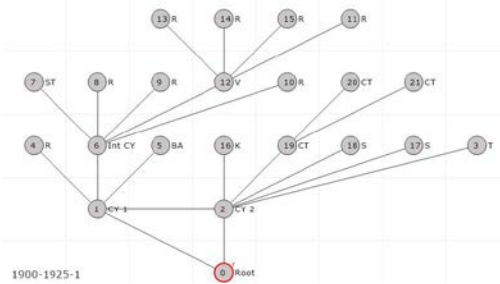
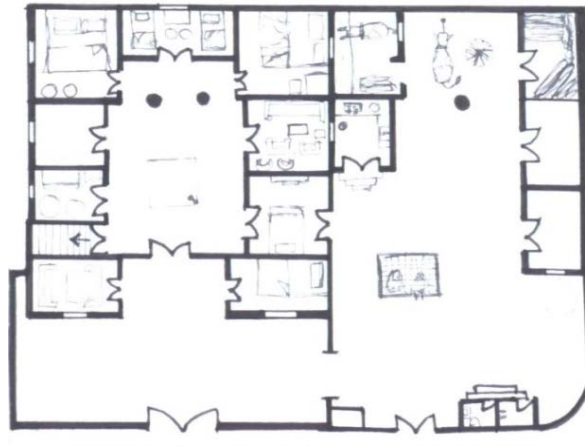


Figure 11. House plans of 1900-1925 – 1 & 2 and their justified graph with integration and control values (Drawings by Author - Studio Work)

1900-1925-1			
	1900-1925-1	i	CV
1	CY 1	9.54	2.8
6	Int CY	8.75	4.4
2	CY 2	7.77	5.03
0	Root	6.17	0.34
12	V	5.83	4.16
4	R	5	0.2
5	BA	5	0.2
19	CT	4.88	2.14
7	ST	4.77	0.16
8	R	4.77	0.16
9	R	4.77	0.16
10	R	4.77	0.16
3	T	4.46	0.14
16	K	4.46	0.14
17	S	4.46	0.14
18	S	4.46	0.14
11	R	3.75	0.2
13	R	3.75	0.2
15	R	3.75	0.2
20	CT	3.33	0.33
21	CT	3.33	0.33
	Min	3.33	0.14
	Mean	5.07	1
	Max	9.54	5.03

1900-1925-2			
	1900-1925-2	i	CV
6	V	7.15	2.5
9	Int CY	7.15	4.5
0	Root	5.44	1.5
14	V	4.68	3.16
2	V	3.88	3.33
7	B	3.88	0.25
8	R	3.88	0.25
10	R	3.88	0.16
11	K	3.88	0.16
12	S	3.88	0.16
13	ST	3.88	0.16
1	C	3.31	0.33
15	R	3.02	0.25
16	R	3.02	0.25
17	R	3.02	0.25
3	R	2.66	0.25
4	R	2.66	0.25
5	R	2.66	0.25
	Min	2.66	0.16
	Mean	4	1
	Max	7.15	4.5

The houses constructed at that time confirm to the courtyard typology as a derivation of havelis. The house 1900-1925 - 1 has three courtyards. House has an open court yard from which internal areas of house are accessed. The front area has two rooms accessed by verandah. The verandah opens into a courtyard that the room provides access to other living areas namely room, staircase, and living. Further interior rooms are easily accessed through a verandah which is directly connected with the courtyard. The other courtyard has service areas namely toilet, cattle space and stores and kitchen. The cattle space is also very well kept having outdoor feeding, indoor feeding and one room for storing the fodder for cattle. The toilet is located and significantly added at a later date touching the outer boundary wall of the open courtyard. The courtyard has multifunctional usage of space. All kinds of external and outdoor activities take place from daily chores to even cooking food in the evening in summer. The outer room is used to entertain and attend guests who visit the house.

The house 1900-1925-2 has an internal courtyard and verandahs with control values 4.5, 3.33, 3.16 and the integration values as 7.15, 7.15, and

4.68 which is again high among other components of the house. The control value of isolated space like staircase, stores etc. are to the tune of 0.16, which is lowest of all other components of the house. The courtyard has five times more capacity to control or influence the rest other spaces. The internal verandah exerts next highest level of control value with 2.5.

Analysis of the justified graph of both the houses reveals that maximum numbers of spaces are connected with the courtyard. The justified graph is five steps deep.

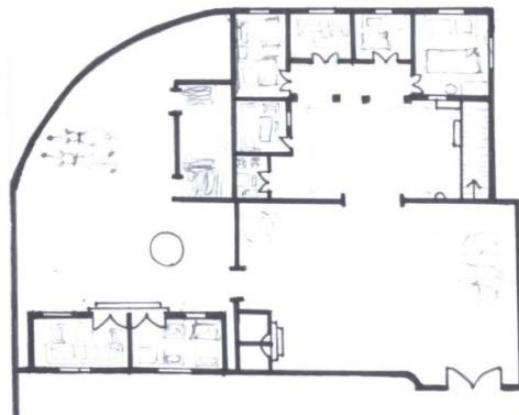
Table 1. Mean value of various attributes, Period 1900-1925

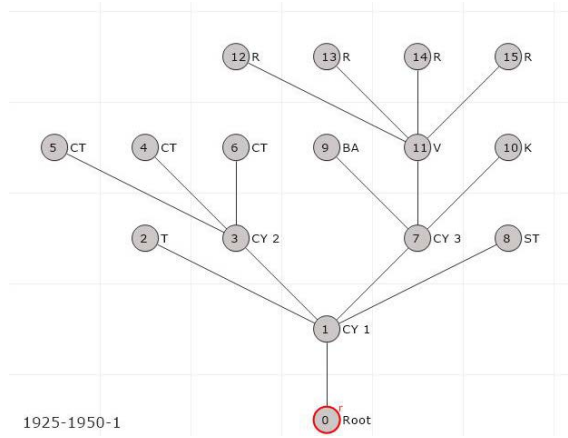
Period 1900-1925	TDn	MDn	RA	i	CV
Mean of house 1900-1925-1	65.72	3.12	0.21	5.07	1
Mean of house 1900-1925-2	54	3.17	0.27	4	1
Mean of attributes of Period 1900-1925	59.86	3.145	0.24	4.535	1

Table 1 tells us that the mean of total depth of houses is 59.86 is relatively high amongst all period sets namely 1900-1925, 1925-1950, 1950-1975, 1975-2000, 2000-2020. The integration is also very high as compared to other period sets.

The JPG structure further reveals an unexpectedly complex, a “bush-like” structure. The house 1900-1925-1 has the courtyard, internal courtyard and the verandah has the highest control value 5.03, 4.4, 4.16 respectively and their integration value is 7.77, 8.75, and 5.83 respectively. The cattle, store, and toilet are the isolated spaces that have control value of 0.33-0.14. Integration values of most integrated space courtyard are three times higher than the least integrated. Rest of the rooms fall within this range. The courtyard has five times more capacity to control or influence the rest other spaces.

Houses during period 1925-1950 – An analysis (Figure 12)





1925-1950-1

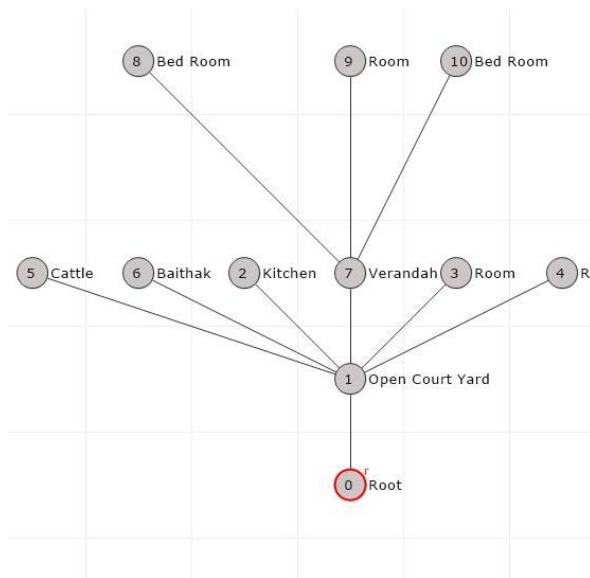
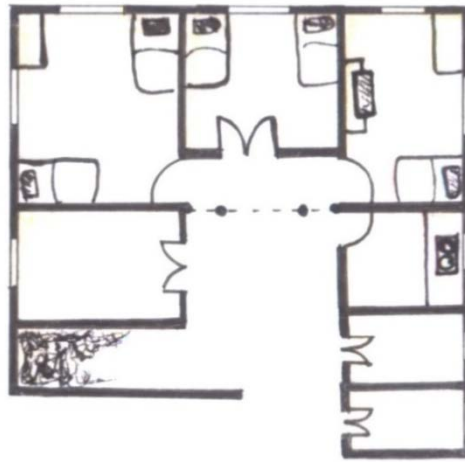


Figure 12. House plan 1925-1950 - 1 & 2 and their justified graph with integration and control values (Drawings by Author - Studio Work)

1925-1950-1			
	1925-1950-1	i	CV
1	CY 1	7.5	3.5
7	CY 3	7.5	2.4
11	V	5.25	4.25
3	CY 2	4.77	3.2
0	Root	3.75	0.2
2	T	3.75	0.2
8	ST	3.75	0.2
9	BA	3.75	0.25
10	K	3.75	0.25
12	R	3.08	0.2
13	R	3.08	0.2
14	R	3.08	0.2
15	R	3.08	0.2
4	CT	2.91	0.25
5	CT	2.91	0.25
6	CT	2.91	0.25
	Min	2.91	0.2
	Mean	4.05	1
	Max	7.5	4.25

1925-1950-2			
	1925-1950-2	i	CV
1	CY	15	6.25
7	V	7.5	3.14
0	Root	3.75	0.14
2	CT	3.75	0.14
3	BA	3.75	0.14
4	K	3.75	0.14
5	R	3.75	0.14
6	R	3.75	0.14
8	R	3	0.25
9	R	3	0.25
10	R	3	0.25
	Min	3	0.14
	Mean	4.9	1
	Max	15	6.25

Analysis of the justified graph both houses reveal that maximum numbers of spaces are connected with the court yard. The justified graph is four/five step deep.

Table 2. Mean value of various attributes Period 1925-1950

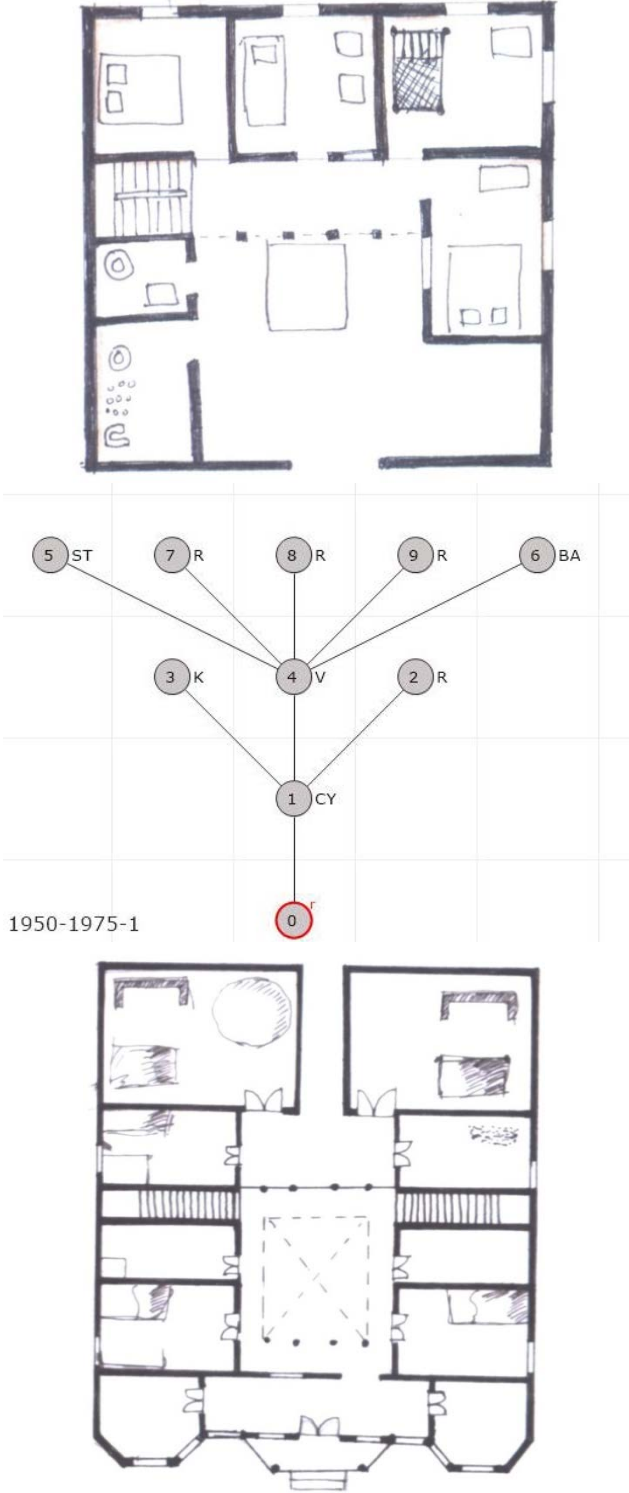
Period 1925-1950	TDn	MDn	RA	i	CV
Mean of house 1925-1950-1	43.37	2.89	0.27	4.05	1
Mean of house 1925-1950- 2	21.45	2.14	0.25	4.9	1
Mean attributes of Period 1925-1950	32.41	2.515	0.26	4.475	1

Table 2 tells us that the mean of total depth of houses is 32.41 is second highest amongst all period sets namely 1900-1925, 1925-1950, 1950-1975, 1975-2000 and 2000-2020. The mean integration value is 4.475. The JPG structure of both the houses further reveals an unexpectedly complex, a “bush-like” structure. The house 1925-1950-1 has the verandah and courtyards with control values ranging from 4.25 to 2.4 and their integration value is 7.5 to 4.77. The cattle, store, and toilet, rooms are the isolated spaces that have control value of 0.20-0.25. Integration values of most integrated space courtyard are two times higher than the least integrated. Rest of the rooms fall within this range.



The courtyard has five times more capacity to control or influence the rest other spaces.

Houses during period 1950-1975 – An analysis (Figure 13)



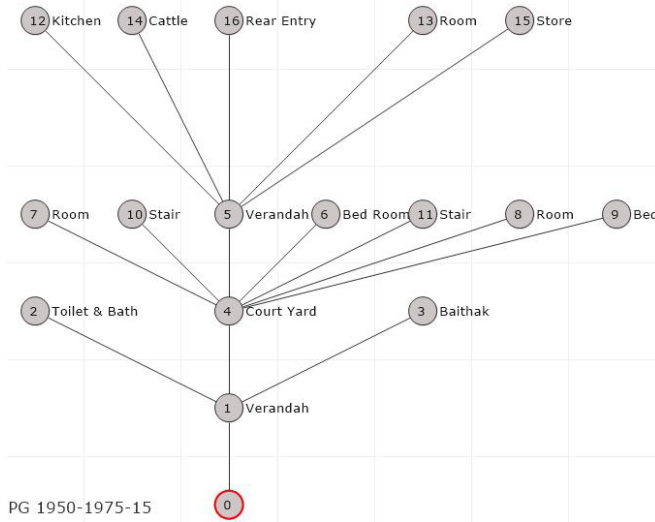


Figure 13. House plan 1950-1975 - 1 & 2 and their justified graph with integration and control values (Drawings by Author - Studio Work)

1950-1975-1			
	1950-1975-1	i	CV
4	V	12	5.25
1	CY	7.2	3.16
5	ST	3.27	0.16
6	BA	3.27	0.16
7	R	3.27	0.16
8	R	3.27	0.16
9	R	3.27	0.16
0	Root	2.76	0.25
2	R	2.76	0.25
3	K	2.76	0.25
	Min	2.76	0.16
	Mean	4.38	1
	Max	12	5.25

1950-1975-2			
	1950-1975-2	i	CV
4	CY	15	6.45
11	V	8.07	4.12
1	V	7	3.12
5	R	5	0.12
6	R	5	0.12
7	R	5	0.12
8	R	5	0.12
9	R	5	0.12
10	R	5	0.12
12	S	3.88	0.2
13	K	3.88	0.2
14	ST	3.88	0.2
15	ST	3.88	0.2
0	Root	3.62	0.25
2	R	3.62	0.25
3	BA	3.62	0.25
	Min	3.62	0.12
	Mean	5.4	1
	Max	15	6.45

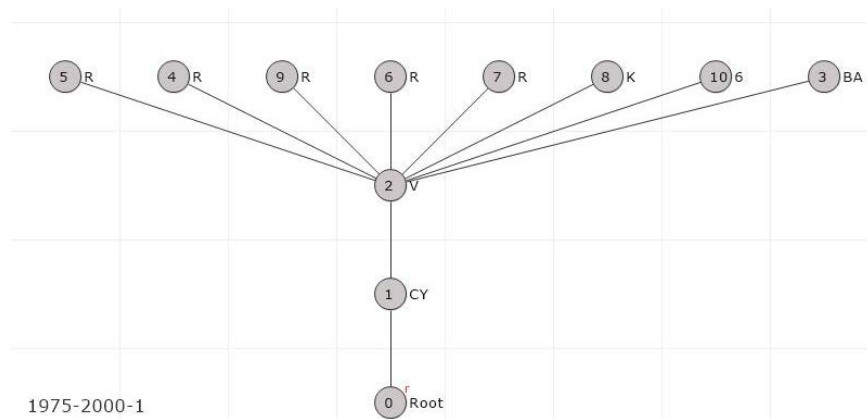
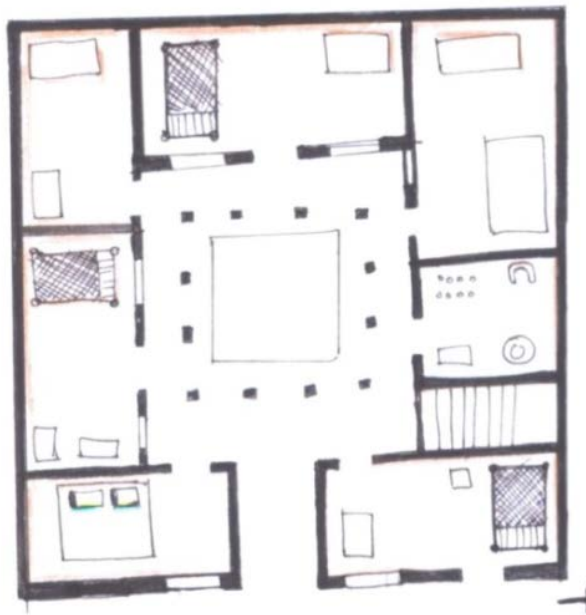
Analysis of the justified graph both houses reveal that maximum numbers of spaces are connected with the court yard. The justified graph is five step deep.

Table 3. Mean value of various attributes, Period 1950-1975

Period	TDn	MDn	RA	i	CV
Mean of house 1950-1975-1	19.2	2.13	0.28	4.38	1
Mean of house 1950-1975-4	37.25	2.48	0.21	5.4	1
Mean of attributes of Period	28.225	2.305	0.245	4.89	1

Table 3 tells us that the mean of total depth of houses is 28.225 is third highest amongst all period sets namely 1900-1925, 1925-1950, 1950-1975, 1975-2000 and 2000-2020. The mean integration value is 4.89.

Houses during period 1975-2000 – An analysis (Figure 14)



1975-2000-1

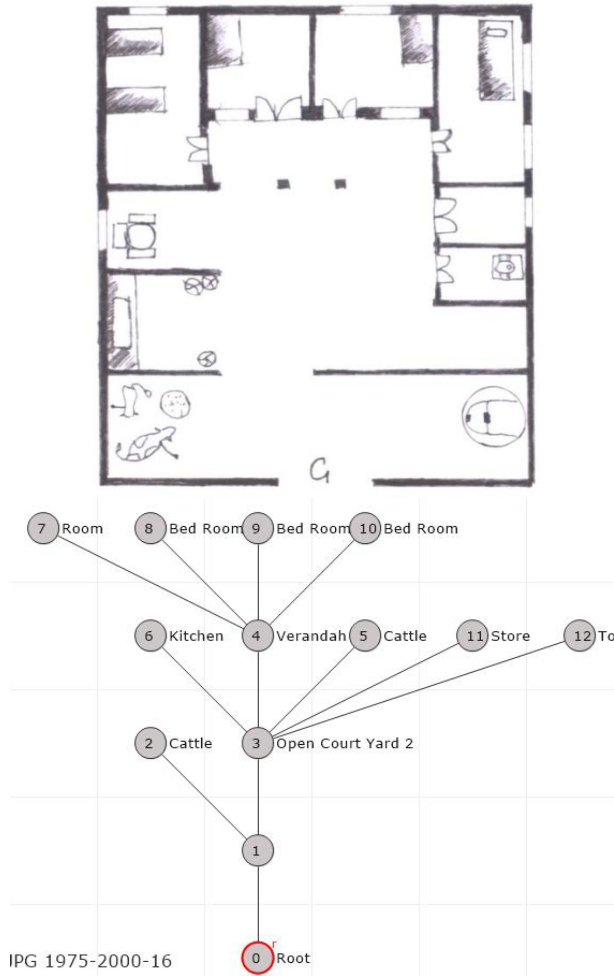


Figure 14. House plan 1975-2000 - 1 & 2 and their justified graph with integration and control values (Drawings by Author - Studio Work)

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1975-2000-1			
	1975-2000-1	i	CV
2	V	45	8.5
1	CY	5.62	1.11
3	BA	4.5	0.11
4	R	4.5	0.11
5	R	4.5	0.11
6	R	4.5	0.11
7	R	4.5	0.11
8	K	4.5	0.11
9	R	4.5	0.11
10	R	4.5	0.11
0	Root	2.64	0.5
	Min	2.64	0.11
	Mean	8.11	1
	Max	45	8.5

1975-2000-2			
	1975-2000-2	i	CV
3	CY 2	11	4.53
5	V	7.33	4.16
1	CY 1	5.07	2.16
4	K	3.88	0.16
6	R	3.88	0.16
7	T	3.88	0.16
8	S	3.88	0.16
9	R	3.3	0.2
10	R	3.3	0.2
11	R	3.3	0.2
12	R	3.3	0.2
0	Root	2.75	0.33
2	CT	2.75	0.33
	Min	2.75	0.16
	Mean	4.43	1
	Max	11	4.53

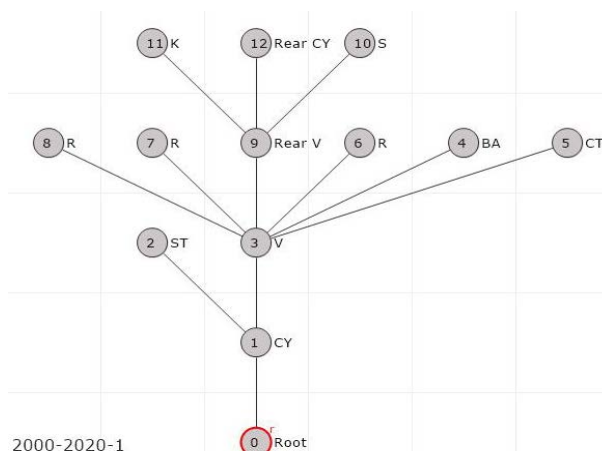
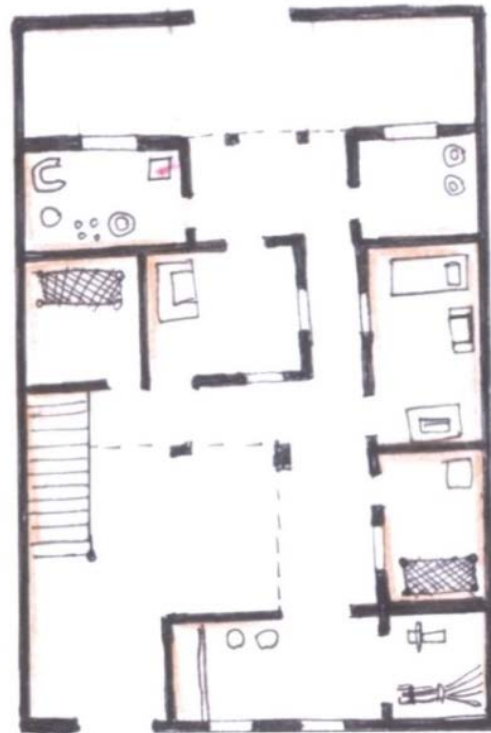
Analysis of the justified graph all houses reveal that maximum numbers of spaces are connected with the court yard. The justified graph is five step deep.

Table 4. Mean value of various attributes, Period 1975-2000

Period 1975-2000	TDn	MDn	RA	i	CV
Mean of house 1975-2000-1	19.63	1.96	0.21	8.11	1
Mean of house 1975-2000-2	29.23	2.43	0.26	4.43	1
Mean attributes of Period 1975-2000	24.43	2.195	0.235	6.27	1

Table 4 tells us that the mean of total depth of houses is 24.43 is fourth highest amongst all period sets namely 1900-1925, 1925-1950, 1950-1975, 1975-2000 and 2000-2020. The mean integration value is 6.27.

Houses during period 2000 - 2020 - An analysis (Figure 15)



2000-2020-1

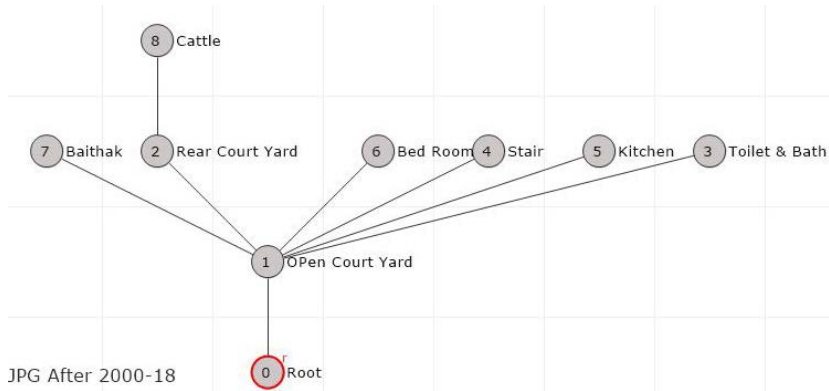
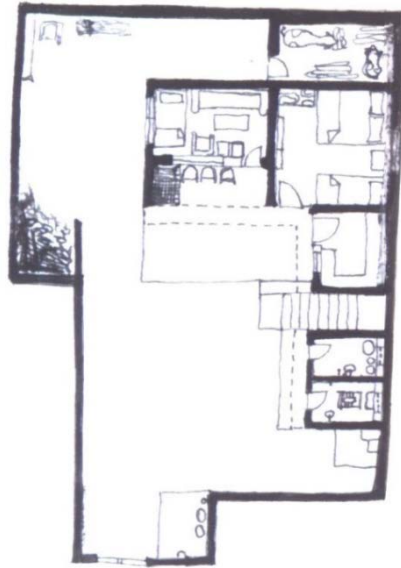


Figure 15. House plan 2000 - 2020 - 1 & 2 and their justified graph with integration and control values (Drawings by Author - Studio Work)

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2000-2020-1			
	2000-2020-1	i	CV
3	V	13.2	5.58
9	Rear V	6.6	3.14
1	CY	5.5	2.14
4	BA	4.12	0.14
5	CT	4.12	0.14
6	R	4.12	0.14
7	R	4.12	0.14
8	R	4.12	0.14
10	S	3.14	0.25
11	K	3.14	0.25
12	Rear CY	3.14	0.25
0	Root	2.86	0.33
2	ST	2.86	0.33
	Min	2.86	0.14
	Mean	4.69	1
	Max	13.2	5.58

2000-2020-2			
	2000-2020-2	i	CV
1	CY	28	6.5
2	Rear CY	4.66	1.14
0	Root	3.5	0.14
3	BA	3.5	0.14
4	R	3.5	0.14
5	K	3.5	0.14
6	ST	3.5	0.14
7	T	3.5	0.14
8	CT	2.15	0.5
	Min	2.15	0.14
	Mean	6.2	1
	Max	28	6.5

The house 2000 – 2020 – 1 constructed at that time does not fully confirm to the courtyard typology with a verandah as connecting space. The house has one open courtyard and one verandah all around.

Table 5. Mean value of various attributes Period 2000-2020

Period 2000-2020	TDn	MDn	RA	i	CV
Mean of house 2000-2020-1	28.61	2.38	0.25	4.69	1
Mean of house 2000-2020-2	15.55	1.94	0.26	6.2	1
Mean attributes of Period 2000-2020	22.08	2.16	0.255	5.445	1

Table 5 tells us that the mean of total depth of houses is 22.08 is least amongst all period sets namely 1900-1925, 1925-1950, 1950-1975, 1975-2000 and 2000-2020. The mean integration value is 5.445.

The house 1200-2020-2 has one courtyard in front and one in the rear with control value 6.5 and integration value as 28 which is again high among other components of the house. The control value of isolated space like toilet, kitchen, store and other internal rooms etc. are to the tune of 0.14-1.5, which is lowest of all other components of the house.

The affluence has been reflected in the size of house, courtyard and the ornamentation of the arcade around. There were three types of courtyard identified one is the open court that precedes the building.

Second is the courtyard within the building surrounded by the arcade. The interaction with the family members revealed that the courtyard is used by family members at different point of time for various activities. Since these were the small houses a single internal courtyard is the only relieving space for outdoor activities. The Baithak (a room where the outsiders are entertained) is preferably placed as the first room of the house. The extended and the large families shared the same space. the toilet and bathing space are usually placed and attached to the external walls of the courtyard facing inside. Although, the walls are high enough to protect the privacy.

Another activity that was most common in the courtyard in rear courtyard is preferably the space where the cattle were kept. That space usually has two to three rooms. One where the cattle are tied during hot day and the other where the fodder is kept and stocked. In the morning and evening the cattle are taken outside in the open court and kept there for some time. The courtyard has a very direct relationship and connection with other spaces of house. A house generally has social space (Baithak/outer room), private space (courtyard) and service space cattle courtyard, toilet, kitchen.

The local climate and season has impact on the usage of courtyard space. usually it is used all day long. The internal courtyard is an introvert space, whereas the outer court yard is a extrovert space whir service areas like toilets, and for cattle etc are placed and is also used to entertain external guest in open.

In some of the cases there were large numbers of rooms. The residents informed that this is either due to extended family or they are multifunctional in nature

Rooms although lacked in furniture. It supports the similar outcomes and reasoning by Nevnihal Erdoğan (Erdoğan, 2017).

CONCLUSION AND RECOMMENDATIONS

This paper is an attempt to identify the continuity of the spatial configuration with respect to the courtyard in vernacular village of Rajasthan. Besides reflecting some socio-cultural reasons it supports the climatic compulsions as well that shape the spatial relationships between various components of a house. The Courtyard, service spaces, private and public spaces are arranged hierarchically. The courtyard has provisions of multipurpose usages by all members of the house. Thus, it becomes a shared space for benefits of all.

A typical house has one, two or three types of such courtyard spaces adjacent to verandah. They are open semi open or may be closed i.e surrounded by arcade and also a roof. Of all such case houses the houses with internal open courtyard is used most by all members of house, even females members throughout the year. The existence of courtyard is still continued in some form and size or the other

While discussing the routine activity in space the residents revealed that courtyard is a good sleeping space during summer outside whereas it multifunctional space. the morning food and evening food is usually cooked in the courtyard outside. Till the sun shines high in the sky or the weather permits to do so. The ladies are usually free time during mid of day and is spent in gossiping and socialising. Thus it changes its sanctity from a private to a semis private space where guest are also entertained. The toilets in the courtyard house are always located on one of the wall of the courtyard. This is accessible from the house through the courtyard. Toilets and personal bathing places are located usually together. This enabled to keep the house environment clean and fresh

The Courtyard – A Concept and Sustainable Vernacular Form

Ibrahim has very well explained the role of courtyard in house plan type in hot arid zones across world. Additionally to it being a functional he cited it to be having a very significant role for climate control.

Courtyards, is a prototype plan form and play two important roles. One is that it sustains the climatic conditions of the region as “the major function for the courtyard is to control the environment and to maintain suitable weather for the humans”, as well as to create an inner environment, that provides privacy and solitude environment. The second aspect is the social one. It includes provisions of a multipurpose space that is for usage of everyone and for much type of social-o-cultural activities. His research demonstrated that “the courtyards’ design is an essential part of the vernacular traditional architecture. It serves the principles of sustainability as a multi-dimensional concept that includes

economic, social and environmental dimensions”. (Ibrahim, 2019, p 16). Environmentally, a courtyard acts as a thermal regulator. In ideal conditions it is a small space in the middle of the house surrounded by rooms where different functions take place providing shade and cool because of the surrounding high walls. Simultaneously the It separates the two domains of public and private.

Identifying the Continuity

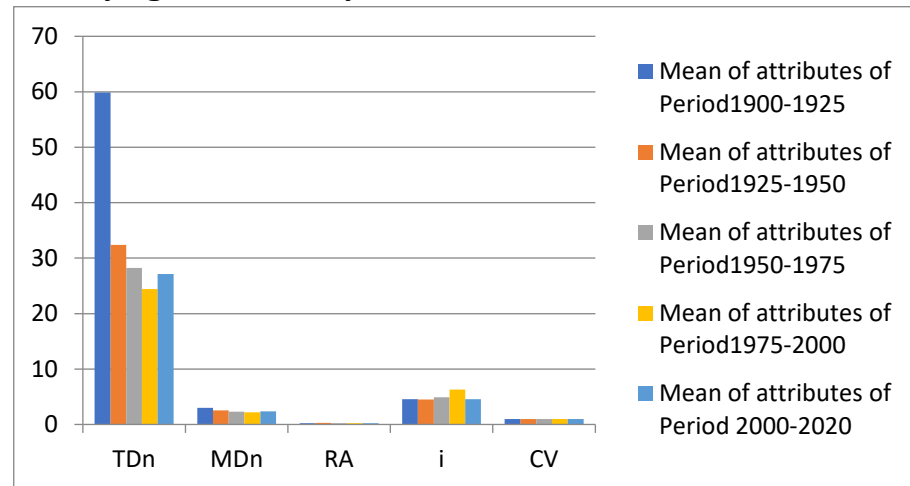


Figure 16. Graph showing inequality genotype data; divided by house (Graph by Author)

Table 6. Comparative means of all attributes across 5 periods

Period	TDn	MDn	RA	i	CV
Mean of attributes of Period1900-1925	59.86	30.14	0.24	4.53	1
Mean of attributes of Period1925-1950	32.41	2.515	0.26	4.475	1
Mean of attributes of Period1950-1975	28.225	2.305	0.245	4.89	1
Mean of attributes of Period1975-2000	24.43	2.195	0.235	6.27	1
Mean of attributes of Period 2000-2020	27.135	2.355	0.255	4.56	1

The above table justifies the diminishing tree like structure genotypes from 1900-1925 till 2000-2020 the average total depth has decreased from 59.86 to 27.135. This amounts to 56% decrease in the tree like formation and grouping and connectivity of spaces. This can be attributed to the fact that the new houses are nuclear ones and have less numbers of spaces and thus the connectivity and dependency is also reduced with courtyard.

This process also produces a type of inequality genotype. In order to attain the overall image of genotype and transformation therein six important sectors have been identified after field visit. These are namely courtyard, verandah, external room, internal room Kitchin, and service areas like cattle, toilets and stair case, the mean integration values of these functional areas were considered.

Table 7. Mean value Total Deptjh (TDn) of various sectors/spaces across all periods

Period	Courtyard	Verandah	Ext. Room	Int. Room	Kitchen	Service area - Cattle/Store
	TDn	TDn	TDn	TDn	TDn	TDn
Period 1900-1925	53	54.5	65.5	69.5	60	32
Period 1925-1950	21	25.5	32.5	35.5	34	25.5
Period 1950-1975	18	21	33	28	32	31
Period 1975-2000	21.5	16	24.5	26	24.5	24.5
Period 2000-2020	25	8.5	27	27	29.5	32
	138.5	125.5	182.5	186	180	145
Mean of attributes of all periods	27.7	25.1	36.5	37.2	36	29

Table 8. Mean value of integration (i) of various sectors/spaces across all periods

Period	Courtyard	Verandah	Ext. Room	Int. Room	Kitchen	Service area - Cattle/Store
	i	i	i	i	i	i
Period 1900-1925	5.54	4.855	3.83	3.385	4.17	2.44
Period 1925-1950	11.25	6.375	3.75	3.415	3.375	1.45
Period 1950-1975	11.1	9.5	3.19	4.135	3.32	3.57
Period 1975-2000	5.345	26.165	4.19	3.9	4.19	4.19
Period 2000-2020	4.58	6.6	3.89	3.89	3.4	3.16
	37.815	53.495	18.85	18.725	18.46	14.82
Mean of attributes of all periods	7.563	10.699	3.77	3.745	3.691	2.96

Table 9. Mean value Control value (Cv) of various sectors/spaces across all periods

Period	Courtyard	Verandah	Ext. Room	Int. Room	Kitchen	Service area - Cattle/Store
	CV	CV	CV	CV	CV	CV
Period 1900-1925	2.68	3.745	0.225	0.225	0.15	1.07
Period 1925-1950	4.875	3.695	0.195	0.17	0.25	0.125
Period 1950-1975	4.805	4.185	0.25	0.14	0.225	0.18
Period 1975-2000	1.635	6.33	0.135	0.155	0.135	0.135
Period 2000-2020	1.695	2.79	0.14	0.14	0.195	0.32
	15.69	20.745	0.945	0.83	0.955	1.83
Mean of attributes of all periods	3.138	4.149	0.189	0.166	0.191	0.366

The close analysis reveals that out of 10 case study houses 6 houses have courtyard as one of the most integrated space and the others have verandahs (Table 7,8,9).

In case of both the houses built during 1900-1925 courtyard with average integration value at 5.54 and the adjacent verandah (i - 4.85) space are one of the most integrated space and the cattle/service space and internal room are the least integrated ones. Courtyard is more than twice integrated with i value at 2.44 merely. The average control value of courtyard is 2.68 and verandah is 3.74 which are highest among all spaces. This means that verandah and the courtyard are the spaces that provide access and control the connectivity with maximum number of spaces in the houses. The service spaces are with least control value (1.07).

In case of two case study houses built during 1925-1950 the courtyard with average integration value at 11.2 and the adjacent verandah space is average integrated at 6.37 are one of the most integrated space and the cattle/service space with average integration value at 1.45 are the least integrated ones. Courtyard is 3.5 times more integrated. The average control value of courtyard is 4.875 and verandah is 3.69 which are highest among all spaces. This means that courtyards are the spaces that provide access and control the connectivity with maximum number of spaces in the houses. The service spaces are with least control value (0.12).

In case of case study houses built during 1950-1975 the courtyard with average integration value at 11.10 and the adjacent verandah space is average integrated at 9.5 are one of the most integrated space and the cattle/service space with average integration value at 3.57 are the least integrated ones. Courtyard is 4 times more integrated. The average control value of courtyard is 4.80 and verandah is 4.18 which are highest among all spaces. This means that courtyards are the spaces that provide access and control the connectivity with maximum number of spaces in the houses. The service spaces are with least control value (0.18).

In case of case study houses built during 1975-2000 the courtyard with average integration value at 5.34 and the adjacent verandah space is average integrated at 26.81 are one of the most integrated space and the cattle/service space with average integration value at 4.19 are the least integrated ones. The further study reveals that the verandah has been given better preference over courtyard and rooms are accessible through verandahs. The average control value of courtyard is 1.635 and verandah is 6.33 which are highest among all spaces. This means that verandahs are the spaces that provide access and control the connectivity with maximum number of spaces in the houses. The service spaces are with least control value (0.13).

In case of case study houses built during 2000-2020 the courtyard with average integration value at 4.58 and the adjacent verandah space is average integrated at 36.6 are one of the most integrated space and the

cattle/service space with average integration value at 3.16 are the least integrated ones. Courtyard is 1.5 times more integrated. Courtyard tend to connect directly with outside. The average control value of verandah is 2.79 which is highest among all spaces. This means that verandahs are the spaces that provide access and control the connectivity with maximum number of spaces in the houses. The service spaces are with least control value (0.32).

Of all the 10 cases the courtyard has significant integration values in 7 cases these also exert the highest spatial control. This is due to the fact that these courtyard and verandah space have highest numbers of links and connectivity.

Comparing the mean values of all period it can be inferred that the average integration values all periods of courtyard 7.563, verandah 10.69 and service spaces are 2.96. the courtyard on the whole and on an average is 2.5 times more integrated than fringe service spaces of housing typology. The average control value of all periods of courtyard is 31.36 and that of verandah is 4.149 and of service spaces is 0.36. Thus courtyard exerts 100 times more control as compared to the control of service spaces in housing typology.

The jpg graph is a bush and tree like structure with most of branches/ spaces generating from courtyard space. Thus it is inferred that despite the changing family structure there is a continuity of courtyard genotype in village Sheopura.

Table 10. Mean integration percentages across all periods

Mean integration % Spaces	1900- 1925	1925- 1950	1950- 1975	1975- 2000	2000- 2020
Low ≤ 3 (Service Sector)	28	18	0	15	8
Medium 3-5 (Private Sector)	50	62	44	61	78
High ≥ 5 (Social Sector)	22	20	56	24	14

The analysis of tables 10 above is interpreted as follows. It is understood that the social spaces are having maximum integration percentages (44% to 78%) and maximum of these spaces have medium to high level of integration values i.e. more than 3. The average of low integration value i.e less than 3 is merely 14% during all periods. This means that over a period of 125 years the continuity of spatial location and integration of social spaces has still existed. The service sector/areas have the least integration values and overall percentage (15%). Hence these are most segregated and are connected furthest. Thus, it is concluded that social sector is highly integrated with least depth in maximum number of case study houses.

Meaning thereby a continuity if spatial structure of vernacular architecture in village Shyopura, Rajasthan.

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CONFLICT OF INTEREST

There is no conflict of interest in the paper.

FINANCIAL DISCLOSURE

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ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research the necessary permissions were obtained from the relevant participant during in-depth survey, interview, focus group interview, observation at site itself.

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Resume

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Comprehensive Revelation on the Tomb Towers Architecture; Persia and Anatolia

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Abstract

Purpose

This article articulates the origin and development of early Islamic tomb tower architecture to middle period and evaluates similarities between Seljuq tomb tower architecture in Persia and Anatolia. To better understanding of the architectural history of this period, it is necessary to specify the description of the general features and its formation. The aim of this article was to suggest a methodological way, which algorithmically described, how the heritage of Persian Pre-Islamic architecture evolved and how the basic principles of Persian Early Islamic tomb tower architecture were developed. Consequently, the aim was to describe the influence on the Anatolian tomb tower architecture in an objective way, and to categorize the elemental features.

Design/Methodology/Approach

First, the article identifies the original traits of the Seljuq Empire mausolea i.e. domed cube and tomb tower, and their influence on Anatolian architecture. In addition, the morphological features, and typological structure propose an objective approach for the comparison of Persian and Anatolian mausoleum architecture in the Middle Period of the Early Islamic Era (10 to 12 AD).

Subsequently, the morphological and structural similarities and differences in the architecture of these two territories have been examined along with their use and development in the historical process.

Findings

As a result, this can prove the hypothesis that the main architectural features have not changed radically, and the basis has remained similar. However, the decorations can be changed rapidly in a more variable way. The research also points, almost all the possible spatial and structural variations have been manifested amongst the early mausolea with a wide range of variations and combinations. Despite the similarities in the polygon of the plan, there are more differences in the construction and shape of domes.

Research Limitations/Implications

the inability to generalize the research findings.

Social/Practical Implications

Destruction of some of the case studies.

Originality/Value

The quantitative methodology used for better understanding the comparison result of the qualitative research.

Keywords: *Early Islamic architecture, mausoleum architecture, Seljuq Empire, shrine, tomb towers*

INTRODUCTION

The early Islamic architecture of Iran was destroyed almost all together due to the Mongolian attack. Although a lot of the memories of the Turkish Seljuq architecture have remained owing to the more resistant building material (stones) and the smaller Mongolian attack.

The early ottoman architecture of tombs has created its style partly based on these traditions, and partly because of the effect of the Byzantine architecture. Its style must have been affected by the direct Persian impulses. This research marks out the exploration of this architectural network as a goal.

AIM AND METHODOLOGY

The aim of the research is to chart different aspects of the similarities and differences of the Persian and Anatolian Seljuq mausoleum architecture. First, the historical background will be analysed. Second, the most important key buildings will be listed, which are the archetypes or the most characteristic examples of the architectural group. Then, the specific features of these archetypical examples will be defined and classified as the main structural and spatial components. Finally, these features will be summarized and represented in matrices (figure 1). Therefore, the aim is to define a system, which can offer objective contribution to the architectural analysis of the connections in the Persian and Anatolian Seljuq mausoleum architecture.

The main objective is to define the basic elements of the two building groups and evaluate their similarities and differences in an objective way. Also, to describe, if there are any elements which are more frequent than the average.

Here, to study such an effect, some examples of the single chamber tomb tower (central tomb tower for individual burial) have been considered. The common historical background is the contribution of the Seljuqs, therefore in the analysis, the mausolea which were constructed in the Seljuq period of Anatolia and Persia were selected and analysed.

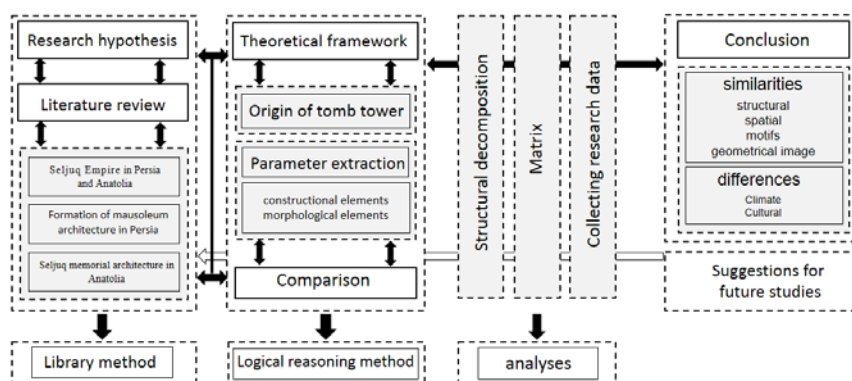


Figure 1. General structure and research Methodology (Authors).

THEORETICAL FOUNDATIONS

In order to investigate the common features of the mausolea in Persia and Anatolia, it is necessary to examine the historical background of the

building type's development as well as the political and social conditions of the concerned territories during Seljuq Era (306 BC- cca. 150 BC). Therefore, the origins of the architectural similarities can be studied more properly.

Historical Background of the Development of Early Islamic Mausoleum Architecture

Since the Islamic influence covered a large area inhabited by heterogeneous population with different historical backgrounds, in the architecture of the concerned land the survival and continuousness of certain local, pre-Islamic customs remained to exist even in the Islamic era. One of the most typical manifestations of this phenomenon can be observed in the history of the architecture of mausolea. The shrines and tombs have appeared in unique architectural forms in all areas conquered by Islam.

Table 1. Historical background of the development of early Islamic mausoleum architecture in the Islamic era.

Northern Africa especially in Egypt	The different cults related to the deaths have played an important role before the influence of the Islam. The direct and unique relationship with the 'afterlife' did not disappear with the conquest of Islam, either during the Fatimid dynasty (9th-12th centuries CE) or during the pre-Ottoman Mamluk era (13th-16th centuries CE). Therefore, it is not surprising that a significant part of Egypt's architectural heritage consists of whole districts of necropolises (e.g. Bab an-Naşr, the Eastern Necropolis and the Southern Necropolis or Qarāfa of Cairo) which are even part of the everyday living space.
Maghreb	Both the shrines of holy people (marabout) both royal necropolises can be observed - see the case of Shālla in Morocco and Tlemcen in Algeria- forming a unique manifestation of the memorial and funeral architectural culture. (Nagy, 2018). However, the holy shrines have a general, important role in urban formation as the targets from pilgrimage, therefore, in many times, they are visited by crowded amount of people. (Maroufi & Rosina, p. 2017).
Eastern Mediterranean region	Various, specific space structure of shrines can be observed. According to K.A.C. Creswell's view, canopy tombs in Syria, Palestine, and the Trans-Jordan region (e.g. Assar, Syria, 3 rd century AD) have Egyptian roots (Saba Banat, Fustat, around 1010) and they were created by circumventing the early Islamic tomb prohibition by a less marked, essentially open, but covered structure, which "is blown by the wind and where the sun shines." (Creswell, 1952).
Central Asia	A funerary architecture developed under the rule of the Samanids (r. 819-999), a dynasty whose mausoleum is in Bukhara (today in Uzbekistan), built in 907. The building has cubic structure with brick decoration on all internal and external surfaces. The Great Seljuq dynasty transferred this proclivity towards the construction of monumental mausoleum in their expansion from Central Asia into Mesopotamia and Anatolia. The mausoleum of Seljuq Sultan Sanjar in Merv (c. 1157-1160), is one of the most impressive examples of funerary architecture from that period, even though today largely exist in ruins.

In the process of progressive expansion of Islam to the east following the Battle of Talas in 751, Islamic rule in the Central Asian region between Amu Darya and Syr Darya, or Transoxiana, was consolidated. Thus, the influence of the Muslim caliph of Baghdad became dominant in the

former western Turkic territory. In parallel, a Persian ruler, the Samanids, represented the Baghdad Caliphate as an emirate at their headquarters in Samarkand and then in Bukhara. All these were reflected in the buildings: in the river basin, the influence of Pre-Islamic Persian architecture began to appear. Thus, Persian architecture is rightly a precursor to Turkic mausoleum architecture in Central Asia, inheriting several pre-Islamic elements.

Table 2. Historical background of the development of early Islamic mausoleum architecture in Persia and Anatolia

In the eleventh century,	Constructing mausoleums officially became an important part of Persian architecture and culture. Many of these mausolea were erected for the honor of famous Sufi dervishes and religious masters, including the tomb of Bayazid Bastami (first dated structure cca. 1120), a famous Persian mystic who lived in the ninth century, in Bastam (Persia). Similar to other mausolea, it was a place for pilgrimage.
In the late thirteenth and early fourteenth centuries,	The building was redecorated with stucco and tiles, also expanded with the addition of a monumental portal and an enclosing wall and an Iwan ¹ across the courtyard from the portal,
In the fourteenth and fifteenth century	The mausolea grew to more monumental size, as testified by the mausoleum of the Ilkhanid Sultan Uljaytu near Tabriz in Western Persia (c. 1314) and the so-called Gur-i Mir. The mausoleum of Timur (d. 1405) in Samarqand (Uzbekistan), built in the early fifteenth century. In this monument, a domed funerary chamber contains the burials of Timur and several members of his family, creating a dynastic mausoleum (Rizvi, 2011).
With the advent of the Safavid dynasty of Persia in the early sixteenth century	Royal tombs were concentrated around the shrine of Shaykh Safi at Ardabil, while other locations such as the shrine of Fatima al-Ma'suma in Qom were promoted as pilgrimage sites (Rizvi, 2011). Around the same time, a strong connection between funerary monuments and gardens was also presented in Mughal India. Mausolea have been preserved back to the mid-sixteenth century, such as the tomb of Humayun (r. 1530–1540 and 1550–1556) in Delhi. The most famous of all is the Taj Mahal (1622–1628), the tomb that Shah Jahan built for his wife Mumtaz Mahal (Koch, 2006). In this case, the mausoleum is situated within a garden landscape that is designed to highlight its structure and to provide a pleasant setting evoking the gardens of paradise (Gharipour & Blessing, 2015).

¹ which is manifested in a rectangular hall or space, usually vaulted, and walled on three sides, with one entirely opened facade.

According to some iconographic analysis, shrines were created as equivalents of paradise, and paradise symbols can be found both in their structure and detailing. One of the oldest forms of this symbolism is a shading tree above the grave, which appears in the plant ornament that appears on the envelope of the structures. At the same time, it can appear in the creation of space, which, like a tree, is a tent formed by the archetype of the roof that gives the tomb a shade, a canopy of domes resting on columns or pillars, or a closed mausoleum of domes resting on walls.

Table 3. The viewpoints of the feature of Islamic mausoleum

Ernst Diez,	The conically roofed tower was a translation into permanent materials of the royal tent of Central Asian nomads, all of which can be corroborated by a brick-textured design. Similar ideas are expressed by Arthur Upham Pope, Eric Schroeder, S.P. Tolstov, Katharina Otto-Dorn and Emil Esin. (Diez, 1938. p. 926, see also: Azarpay, 1982. p. 9).
Katharina Otto-Dorn	Two-storeyed Anatolian Seljuq <i>kümbets</i> (e.g. Shrine of Malik Gazi in Kirşehir, 11th century) are related to Central -Asian burial practices. While the upper space, the <i>cella memoriae</i> (namazgah) symbolizes the tent where visitors can pay homage to the deceased, the lower chamber, the <i>hypogeum</i> (cenazelik), represents the burial chamber containing the body itself (Otto-Dorn, 1979).
Andere Godar	Realizes the formation of Islamic art as being more based on thought than on the form and technique. He was of the belief that the art should not be any more taken into account from the perspective of the masonry or stone and brick or skill and versatility of the artist rather it has to be known as the mindset and spirit of the nation's community that creates the artworks or special styles and methods. Godar considers Islamic architecture, especially in the very beginning of Islam, as being imitated from the styles of the other civilizations and cultures (Mosavi, 2002).
Pope	The mutual effect of Persian culture and art on the other civilizations is the subject that has been taken into consideration by many of the experts and researchers and Pope has also dealt with it. But, in his mind, all of the buildings constructed in Persia feature a Persian personality and nature. He opines that the preliminary architecture of a historical epoch is surely influenced by the other civilizations and finds the architecture of the late era before Islam as effective on the architectural styles of other spots. The topic that Pope and many of the other historians of Persian art and architecture believed in was the interaction between Persia's culture and art with those of the other civilizations though Pope always emphasizes on the vernacular properties of Persian Art (Pope, 1987).
Blair and Bloom	The oriental culture and civilization are amongst the civilizations influencing the culture and subsequently the architecture of the other countries. In their valuable book named "Islamic art and architecture", Shila Beller and Jonathan Bloom dedicate a part to the title "the effect of Islamic art" and speak of the continuation of Islamic architecture's effect on the European architecture (Blair & Bloom, 2002).
Hasani and Taghavi	Factors like the Persian population's extensive migration to Anatolia and the Persian prominent figures and scientists who were avidly needed by the Seljuq Government assisted the daily increasing inclination of the Seljuq elders towards the Persian culture. The present study's findings underline the idea that Persians promoted culture, rites and rituals and distinct signs of science, art and knowledge that were common in Seljuq Era's Persia along with their presence and created many scientific, artistic and literary works. The interaction between Persians and the Seljuq governors and the auspicious conditions provided by them, as well, paved the way for the growth and blossoming of the Persian culture (Hasani & Taghavi, 2010).
Oleg Grabar and Bunakati	The emphasis on the vertical direction of mass formation can also be interpreted as a symbolic representation of heaven - thus reaching a group of tower museums in Persian territories. One of the most important examples is <i>Gunbad-i Qabūs</i> in Gurgan. The circular plan building is 61 meters high and 17 meters in diameter. The emphasis on vertical dimensions can be nourished on the one hand -according to Oleg Grabar - as an important symbol of victory in the reign. But it can be interpreted as a "ladder to heaven" as described by Bunakati in the 14th century (Daneshvari, 1986). In this point, the further important archetypes of the mausolea are the Sassanid <i>chahar tag</i> ² , the <i>dakhma</i> and the <i>imamzade</i> .

² Chahar-tag is a cross-shaped space with a dome cover that sits on the hinges and has four arched entrances (Godard, 1938, pp. 8-10; Boyce, 1975, pp. 463-464; Huff & O'Kane, 1990, pp. 634-642)

³ Inner Asia refers to landlocked regions within East Asia and North Asia

⁴ Memorial Architecture is the Symbol of Remembrance, Memories, and power

⁵ covered with domes, sometimes with cones on the outside, various vertical stretches, e.g. Gunbad-i Qābūs, Gurgan, 1007.; Gunbad-i Pīr-i Alamdār, Dāmghān, 1021.; Gunbad-i Chihil Dokhtarān, Dāmghān, 1058.; Gunbad-i Mihmandust, Dāmghān, 1097.; Burj-i Tughril, Rayy, 1139

⁶ covered with domes, e.g. Mausoleum of Ismail Samani, Bukhara, 10th Century; Mausoleum of Pīr, Takistan, 12th Century

⁷ covered with domes, e.g. Pīr-i Murād, Turanpusht), octagonal (covered with one or two-shell dome, e.g. Gunbad-i Alī, Abarqū, 1038.; Karraqaan, 1067

⁸ with domed interior and polygonal conical outer mass, e.g. Gunbad-i Kābūd, 1197

⁹ typically domed and polygonal conical outer mass, e.g. Gunbad-i Ghazan Kān, 14th Century. It has a symbolical meaning related to the first twelve imams of Islam

In Turkic-influenced Inner Asia³, a wide variety of memorial⁴ architecture spatial types have evolved, with buildings that can form circular⁵ square⁶, hexagonal⁷, decagonal⁸ and dodecagonal⁹.

The important example of the first category is the first significant, still standing building of Muslim memorial buildings in Central Asia, which can be linked to the Islamic Persian-origin Samanids. Built in the 10th century, the Mausoleum of Ismail Samanī in Bukhara is a square-planned building with a dome, the brick construction gives a unique decorative surface on both the internal and external facades. In the corners of the transition zone between the polygonal space and the raised hemisphere dome, a conical vault gives an essential feature to the building, which - thanks to the row of windows running on the facade- gives the unique light effect. The entire building, like a lightly woven tent, rises above the tomb below the floor, creating a closed polygonal basement type of Muslim tomb architecture in Central Asia, with an influence on the architecture of the following ages.

Development of Seljuq mausoleum architecture

The Seljuq Turks' dynasty was established at the onset of the eleventh century. They always supported and promoted industries and techniques in Persia, Minor Asia, and Iraq (Zaki, 1941). After Seljuq's defeat of Ghaznavid dynasty in 1040 AD and demolishing the Buyid dynasty in Baghdad, they established themselves as new protectors of the Abbasid Caliphate in 1055 AD. Within fifty years, the Seljuqs created a vast empire, encompassing all of Persia, and much of Anatolia. Under the Seljuq sultanate, Persia had a period of material, cultural wealth as well as creativity in art and architecture (Bosworth, 2007).

Christian Wilson writes "in this era, the industries and architecture not only revitalized in Persia but it was also with the Seljuqs' conquests that the principles and styles of Persian industries were expanded and spread to the northern coasts of the Mediterranean Sea and even north of Africa and it is due to the same reason and quality that the Persian artists' artworks and samples of them as well as the common Seljuq Era's industries can be seen for centuries in Egypt and Syria's industries (Wilson, 1938).

In Seljuq Era's constructions, brick is skilfully used in various methods and, corresponding to the traditions, the exterior surfaces of the buildings are offered without any additional coating and with the same brick-laid view that form the trivial decorations of architecture and the elements used therein. Of course, it is worth mentioning that the brick-casting art and decoration of the buildings with well-molded bricks have been common in Persia since the 11th AD and continued till the late 12th AD (Behnam, 1963).

Persia was captured by Khwarazmians with the defeat of Seljuqs in 1142. Although the Khwarazmians' government was expanded (1078-1231), it became unstable with the outset of the Mongols' attacks. The first raids by the Mongols in 1220 to the Khwarazmians' territory led to the instability of Khorasan and the other regions in Persia. In these attacks, Khorasan, the most important center of knowledge and literature and art, was damaged more than any other places and this same issue caused the

migration of many Persian scholars and artists to the other lands in Minor Asia that was still held at that time by a group of Seljuqs known as Rumi Seljuqs (1078-1301). Beyond the Persian borders, Seljuqs laid the cornerstone of the establishment of a Turk government in Anatolia (Figure 2). They ruled for nearly three centuries in a vast part of Anatolia in a stretch of land that encompassed various tribes. It was by their socialization that a civilization sprouted, and a government known as Rome's Seljuqs was established. The Seljuq government supported culture and art and created a system that provided the opportunity for the fertilization of culture and art with its enforcement of the reconciliation policy within its realm. However, the architecture of this period can be possibly introduced as one of the most excellent manifestations of this government.

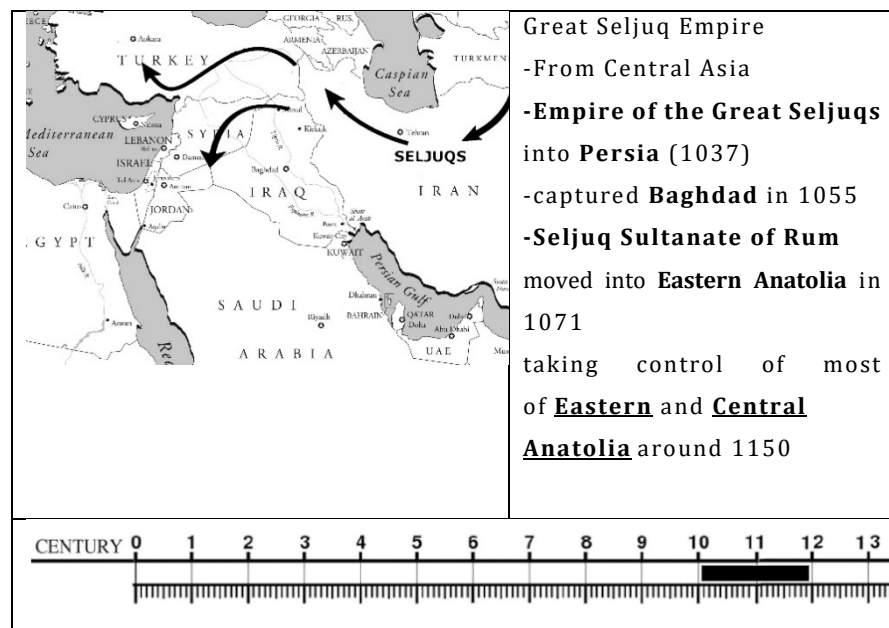


Figure 2. Seljuq Empire in Central Asia and Middle East (Prepared by Authors).

ANALYSIS

The Revelation on the Origin of Tomb Towers Architecture

The first type of Persian mausolea belonging to the Samanid princes in Bukhara in the 9th AD, the plan is a domed cube probably influenced by the Sassanid Chahar-tag (Pope, 1976).

The wide distribution of Sassanid shrines throughout Persia during the Islamic victory made this type of architecture an obvious example for the Islamic tombs of Persia. Another feature of the tomb of Amir Ismail Samanid, which reinforces the theory of Persian's architectural style, is the zone of a transition that resolves the issue of transitional rule by Sekonj the square into a circle dome, a transition structure that is common in the Sassanid period.

Another type of shrines in Persia is formed by the group of tomb towers. Its origins lie in a veil of mystery. Due to the prevalence of these tombs in northern and north-eastern parts of Persia, some scholars refer to them as Turkish tents or Chinese watchtowers (Daneshvari 9, 2011). Their

predominant form is a tall cylinder with a cone-shaped roof, the first surviving example of which is the Gabus dome (1006 AD). Tomb towers were common from the late fourteenth to the early eighth century (on the arrival of the Ilkhanids). Therefore, two types of architectural features of the mausoleum in Persia are tomb towers and Dome Cube. It is important to note that the octagonal plan shape is found in both types (Figure 3). Over time, the incarnation of the early form of tomb architecture that was the building of the domed cube has evolved into a result of intellectual evolution as a dome-shaped octagon (Kiani 70, 2009.).

On the other hand, Minaret is a specific physical element in Islamic architecture, which has an ancient record in pre-Islamic Persian architecture. A host of theories concerning the initiation of minaret could be found in contemporary debates of Architecture. In this article, ziggurats, huge buildings in Mesopotamian civilization, and one of the essential religious constructions of civilization history, are considered as the progenitors of our minarets. Because of the changes in human perception of religion and in association with domestic architectural patterns, this architectural element has faced various changes, both in form and function, in different regions and different rituals. Some experts believe that Minaret had been a sort of milestone used as a guiding symbol in ancient routes of pre-Islamic Persia or it could have been the sign of huge traditional sacred fireplaces in that era. In addition, there could be found some ideas that insist on the religious role of Minaret even in pre-Islamic Persia as the main trait of it, not its function as a milestone. This element has achieved an important role in Islamic architecture, to the point that along with domes and gates, minarets have been considered as the main landmarks to enhance the legibility of Islamic cities. Kiani believes that the oldest samples of Minaret are the Persian Pre-Islamic milestones such as Firouzabad milestone and Mamasani milestone in southern Persia and some others in central mosques of Damishgh, Syria and Samerah, Iraq (Heydari, 2008).

The Gonbad-e Gabus at Gurgan in Persia (1007 A.D.) is the earliest tomb tower (over 1000 years old) with a solid conical shell. It is the largest Seljuq dome with a 9.7m span and 57m height (Figure 3). Monumentally, its style holds an important place in the Seljuq architecture (Pope 1976), which was used later as a model for developing cylinder or cube-based forms throughout Persia and surrounding areas (O'Kane 1998; Saoud 2003).

Based on the evidence, two significant Factors affecting the deformation and function of Gonbad-e Gabus in the Seljuq period, desire to build magnificent monuments and Rulers and architects were familiar with majestic architecture and Geometry before the advent of Islam in Persia, so it can be argued that the architect in the design of the Gabus tomb Tower was inspired by the glory of the minaret that was common in Persia.

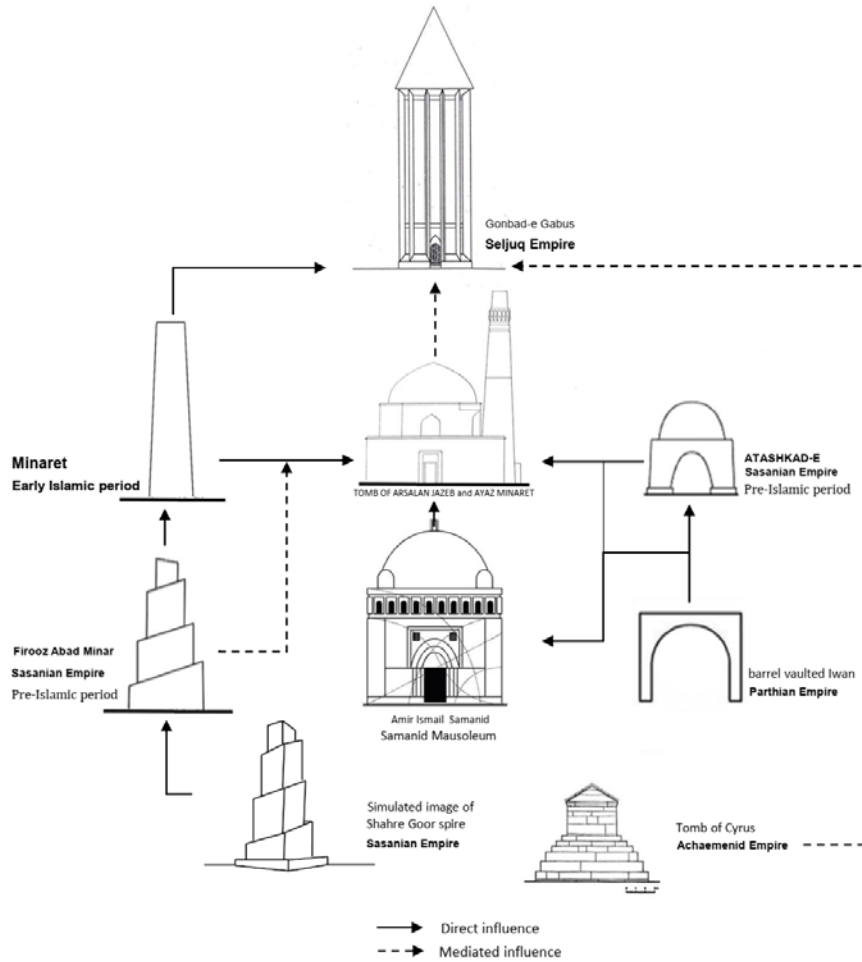
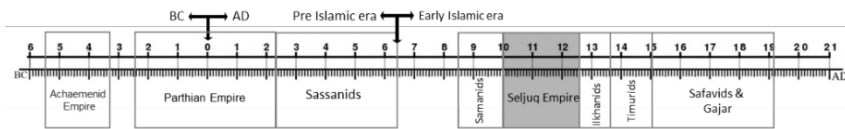


Figure 3. The origin of Tomb towers in Middle East (Prepared by Authors).

Figure 4. Timetable of Persian empire (Prepared by Authors).



Early Islamic Mausoleum Architecture in Persia

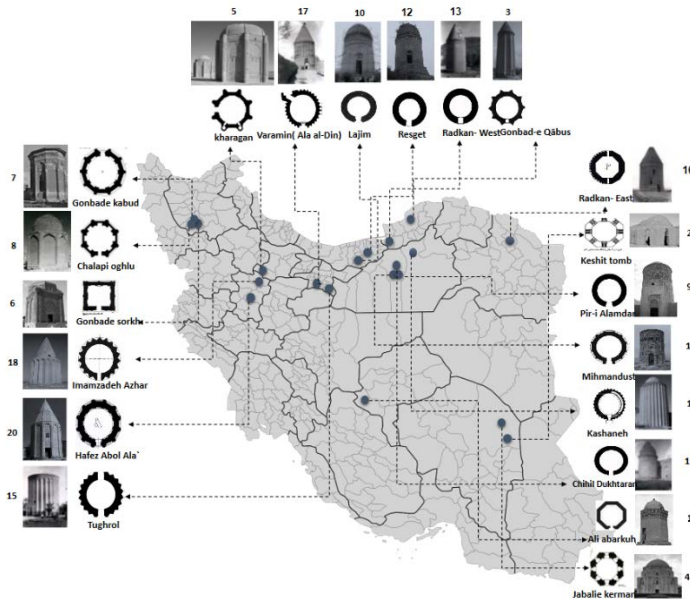


Figure 5. Early Islamic Tomb towers in Persia (Prepared by Authors).

9	Pir-i Alamdar	Damghan		13	6.4	Brick	1021-6	19	Kashaneh	Bastam		20	14.4	Brick	1313
10	Lajim	Lajim		18	7.2	Brick	1022-1023	20	Hafez Abol Ala`	Hamadan		16.7	7.6	Brick	1300

Seljuq Mausoleum Architecture in Anatolia

With the Anatolian appearance of the Seljuqs, the type of building from the Persian territories that preserves the pre-Islamic architectural idea also appears on the Anatolian Peninsula. The earliest kümbets are connected to the Danismendida dynasty from 1071 to 1178, whose main centres are the cities of Eastern Anatolia: Sivas, Kayseri, and Malatya.

The features of the early Anatolian Seljuq kümbets are the spatial formation with one-storey tombs with an inner space only above the ground, and the two storied buildings with a funeral chamber and a memorial space. The funeral chamber was typically constructed not underground, but to the ground. The former burial chamber is typically square, rarely octagonal, whereas the upper space is hexagonal, octagonal, decagonal (e.g. Kümbet of II. Kılıçarslan in Konya, 12th Century) or dodecagonal, moreover, the circular plan is also typical. The space was covered with domes in the interior, pyramidal or conical mass in the outer space. Therefore, a wide variety of space formation was typical in the Seljuq architecture of Anatolia.

Special mention should be made of the kümbets in Ahlat as a cohesive group of buildings, each of which has a two-storey, circular-planed interior with a dome with a cone-like appearance.

These examples are typically part of a building complex where the grave of the founder of the building group is located. Exceptions to this are mosques - as there are burials in the foreground of the mosque. The Kümbet of Mama Hatun, which was built in Tercan in the early 13th century, is a unique monument both in space and in its complex of buildings. The focal point of the building complex is two-storey: the crypt-space (cenazelik) is an eight-arched cone-shaped tomb tower with a memorial space (namazgah). The building is bordered by a circular plan wall with internal niches on the inside.

Although these buildings retain a number of Central Asian traditions in terms of space and structure, the difference consist significantly in the material. While brick was the prime building material for former buildings, including the Seljuq examples in the Persian territories, stone architecture - usually the natural stone - plays a decisive role in Anatolian Seljuq architecture. There are, of course, exceptions: the 15th-century mausoleum of Zeynal bey, located in Gunbad Ali (1055) near Jazd in central Persia, and Kümbet of Zeynel bey in Hasankeyf in south-eastern

Turkey, in which case it gives a similar pattern, which is decorated with glaze ceramic along the lines of the gate and the ledge. The latter building has been completely rebuilt due to dam construction. In Anatolian Seljuq architecture, the exclusive use of brick is typically found in minarets.

The architectural use of glazed tile artwork of Chinese origin is typically found in Anatolia, with the contribution of Seljuqs, mainly in the form of glazed decorative elements embedded in masonry. The Seljuq memorial buildings are richly ornamented almost without exception, and their exterior features a variety of ornamentation. The decorations typically appear around the gate, in the case of a polygonal floor plan, on the framing of each facade and on the crown cornice. In the case of floral ornaments, which are usually planted, we can identify the idea of Paradise. One of the important origins of the ornaments is due to the rich surface decoration in the architecture of the Caucasus. The floral motifs sometimes contain imaginary creatures, as well as the Anatolian Hittite power symbol, the one-headed and the two-headed eagle. In addition, there are many Central Asian ornaments - which also depict human or animal are the traits of "Eurasian animal style", personalization of planets, constellations, hunting scenes, hunting animals, human figures in a sitting position, symbolizing the change of the seasons can be seen as a lion and a bull, a dragon with an intertwined body (Gerelyes, 2007).

The surface decoration made of masonry of the wall structure often draws a ribbon-like motif or inscription. The interior and exterior surfaces of both areas are adorned with elements of masonry, often rich in fabrics or lace, as evidenced in the 14th-century stone building of Hüdavend Hatun in Niğde. Thus, these buildings retain a rich interior decoration, both in the Anatolian, Caucasian, and pre-Islamic Inner Asia.

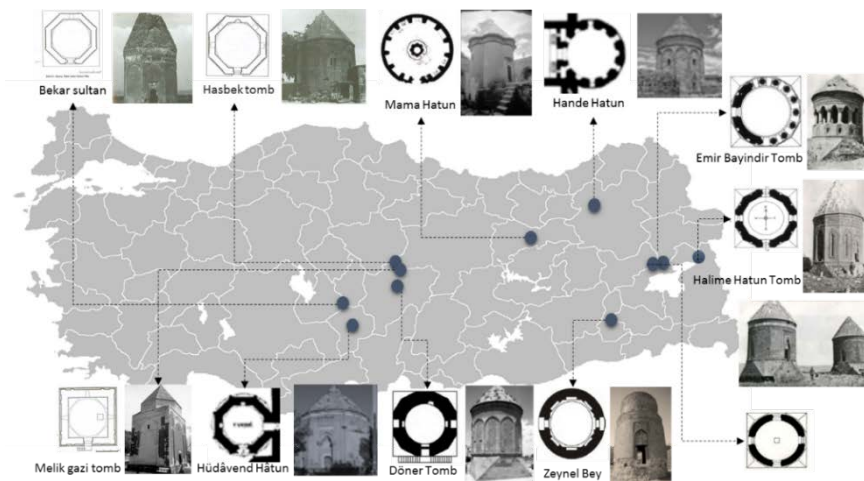


Figure 6. Tomb towers in Anatolia (Prepared by Authors).

Table 5. Construction feature of Anatolian tomb towers, Source: authors archive and (Onkal, 1996)

	Tomb		Floor plan	Height	Diameter	Material	Date A.H		Tomb		Floor plan	Height	Diameter	Material	Date A.H
1	Melik Gazi	Niksar		18	7	stone	12	7	Mama Hatun	erzincan		6.40	3	Stone	13
2	Hasbek	Kayseri				stone	12	8	Hande Hatun					Stone	13
3	Bekar Sultan	aksaray				Stone- brick	12	9	Hüdâvend Hâtun	Nigde		15,5		stone	14
4	Döner	konya		16.5	8.25	stone	13	10	Halime Hatun	Söğüt		10	6.80	Brick	14
5	Hüseyin Timu- Eser							11	Zeynel Bey	Hasanke		16.5	5.68	Brick	15
6	Ahlat			10	8	Stone	13	12	Emir Bayindir	Ahlat		8.80	5.2	stone	15

The Influence of Persian- Seljuq Mausoleum on Formation of the Anatolian- Seljuq Mausoleum Architecture

In Anatolia, Greek and Byzantine history on the one hand, the influence of the Achaemenid empire and the Sassanid era of Persia on the other hand and with its Asian history, eventually surpassed the Seljuq era and brought the Ottoman period, so the influence of Persian architecture roots on Anatolian architecture can be deduced.

Following the Seljuq conquest of Anatolia in the late eleventh century, the construction of a tower-shaped mausoleum with conical roofs took hold there as well. Even though no examples have survived from this earliest period of Islamic rule in Anatolia, examples from the twelfth and thirteenth centuries are numerous (Figure 7).

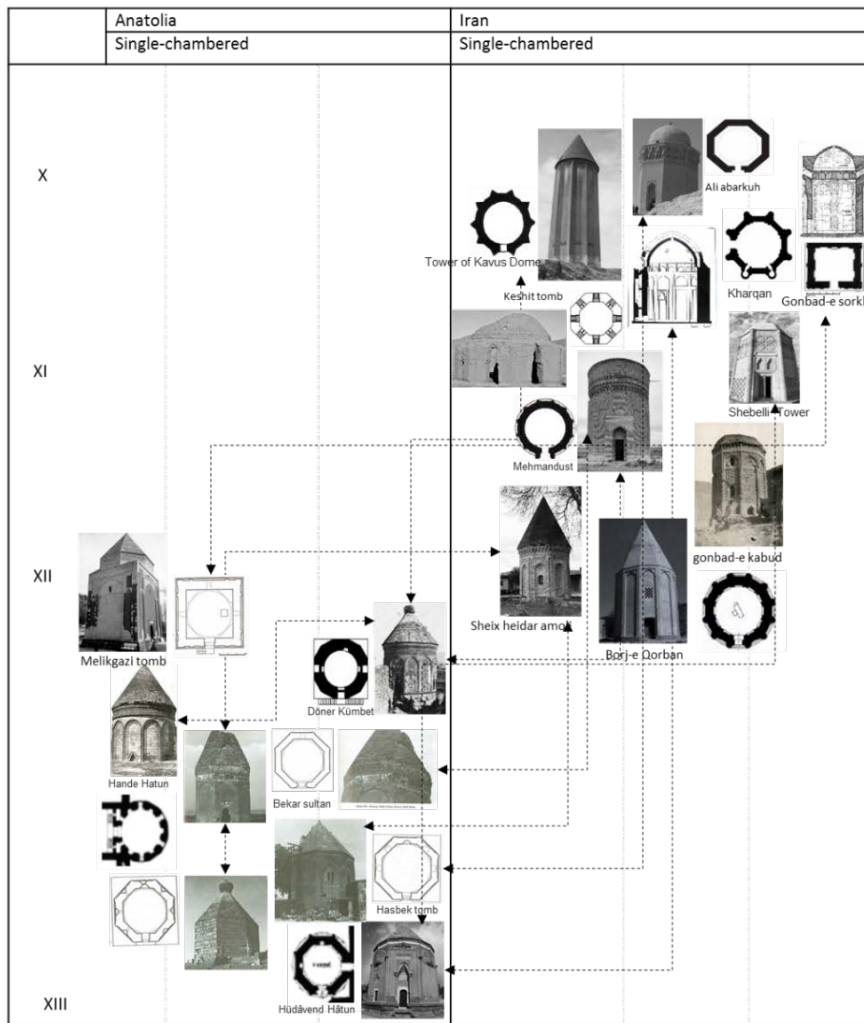


Figure 7. The influence of Persian- Seljuq mausoleum on Formation of architecture of the Anatolian- Seljuq mausoleum (Prepared by Authors).

DISCUSSION

According to the previous historical overview, the Anatolian Seljuq shrine architecture has a close historical relationship with the mausolea in Persia. However, it is an important question, if the similarity can be demonstrated in architectural (spatial and structural) way. Therefore, an analysis method is suggested, in which the buildings are deconstructed to its most important features and investigated in matrices. Then, the morphological and constructional analysis can be made in an objective mathematical way.

In the following analysis, the most common case studies that can cover major part of tomb towers type in Persia (A= Ali abarkuh, B= Gonbad-e Qâbus, C= Kharagan Tomb, D= Mehmandust, E= Gonbad-e Kabud, F= Gonbad-e Sorkh) and Anatolia (A'= Melik Gazi Tomb, B'= Döner Tomb, C'= Hande Hatun, D'= Bekar Sultan Tomb, E'= Hasbek Tomb, F'= Hüdvend Hâfun Kümbet) are selected in chronological order and categorized based on structural decomposition (Table 3).

The spatial and structural elements, in which the buildings are deconstructed are the following: the polygon of the plan, the shape of the dome, transitional zone, main body, and storey – if it exists. The twelve

examples from both the territories of Persia and Anatolia are deconstructed to these elements.

Table 6. Structural decomposition in chronological order (Prepared by Authors)

	A	B	C	D	E	F	A'	B'	C'	D'	E'	F'
Plan												
Dome												
Transition Zone												
Main Body												
Storey												

Table 8. Analysed by matrices (Prepared by Authors)

	Plan - Number of edges						Dome's shape						Transition zone							
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F		
A	0	0	1	1	1	0	A	0	0	0	0	0	A	0	1	1	1	1	1	
B	0	1	0	0	0	1	B	1	1	1	0	0	1	B	0	1	0	0	0	1
C	0	0	1	1	1	0	C	0	0	0	0	0	0	C	0	0	0	1	0	0
D	1	1	0	0	0	1	D	0	0	0	0	0	0	D	0	1	0	0	0	1
E	0	0	1	1	1	0	E	0	0	0	1	1	0	E	0	0	0	1	0	0
F	1	0	0	0	0	0	F	1	0	0	0	0	0	F	1	0	0	0	0	0
	Main body (circle-rectangle- polygon)						Geometrical images ¹⁰						Proportion ¹¹							
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F		
A	0	0	1	1	1	0	A	0	0	1	1	0	0	A	0	0	1	0	0	0
B	0	1	0	0	0	1	B	0	1	0	0	0	0	B	0	0	0	0	0	0
C	1	0	1	1	1	0	C	0	0	0	1	1	1	C	0	0	0	1	1	1
D	0	1	0	0	0	1	D	1	1	1	0	0	1	D	1	1	0	0	0	0
E	1	0	1	1	1	0	E	1	1	0	0	1	1	E	0	0	1	0	1	0
F	1	0	0	0	0	0	F	1	0	0	0	0	0	F	1	1	0	1	0	0

¹⁰ Geometrical images have been evaluated according to figure 7 based on decoration.

¹¹ Proportion has been evaluated based on dimension according to table 1 and 2.

These features were summarized and represented in matrices (Table 7), To evaluate the comparison between the dominant type of architecture in these territories, number 1 mentioned to similarities and number 0 to differences.

Subsequently, the similarities and differences of the examples analysed by matrices according to the features (Table 4). Finally, the similarities are summarized in one matrix (Table 5).

Table 9. Collection of similarities (Prepared by Authors)

	A'	B'	C'	D'	E'	F'
A	0	1	5	4	3	1
B	1	5	1	0	0	4
C	1	0	2	5	4	2
D	3	5	1	0	0	4
E	2	1	2	3	5	1
F	6	1	0	1	0	0

It can be ascertained that conical, pointed and polyhedral domes are one of the distinctive aspects of Persian domes which constitute an essential milestone in the development of funerary monuments as a cultural tradition after the appearance of Islam in Persia and surrounding areas (Ashkan, 2012). One of the most enduring signs of Seljuq architecture is the distinct types of conical and pointed domes which still stand in Azerbaijan, Turkey, Persia, Turkmenistan, and Uzbekistan. In the Anatolian district of the Seljuq Empire, tomb towers were structurally distinguished from the Persian ones through the deep influences of Armenian models (Stierlin, 2002). According to Hillenbrand (1999), these tomb towers, in some aspects preceded Persian samples as a model in which either pyramidal or conical shells rested on either cylindrical or polygonal bases.

We can see a wide variety of constructional and spatial possibilities. Almost all the possible variations can be demonstrated, therefore the rich architectural formation is visible. The shrine architecture of Anatolia has had the closest correlation with the Persian ones based on the morphological and constructional analysis. According to the summary matrix (Figure 5) it also can be observed, that the most similarity is in the number of edges, and the main body. The less similarity can be seen in the shape of domes. Therefore, it can be determined that besides the general similarity of the two building groups, the main difference between the Anatolian and Persian Seljuq mausolea is in the construction and shape of the dome.

In most cases the direct links between the two building groups could be determined. Even though in all the architectural features similarities could be detected, the main similarities are structural and spatial, and the fewer similarities are in the level of the motifs, the geometrical image (Table 6).

Table 10. General spatial and structural comparison (Prepared by Authors)

from	the	similar plans and polygons
spatial point of view		compositional articulation between the cubic base and the cylindrical bearing system
		varying degrees of ornament
		the use of an exterior ring of blind arches
		heights of the tomb tower
structural point of view		use of local stone rather than bricks
		different types of transition zone
		surround the body of the tomb tower with a triangular peel
		stem of dome between the dome and the main body
from cultural and climatical point of view		use of different floors for burial
		common type of polyhedral dome's shape rather than pointed and conical dome – different constructions and shape of dome

CONCLUSION

In the paper, the case studies of Persian and Anatolian Seljuq mausoleum architecture were analysed. Since the several historical links of the two building groups have been summarized, it is important to research the manifested architectural evidence. Therefore, after the definition of the main spatial, constructional, and morphological elements, a mathematical chart was introduced. This offers a possibility to set up an algorithmic system to detect the similarities and differences between the Persian and Anatolian Seljuq buildings in an objective way.

As determined by the authors, the roots of the Islamic mausoleum architecture lead to the pre-Islamic ancient architecture. Subsequently, following several major compositional types of Persian and Anatolian mausoleums were formed and later became standard i.e.- Chahar-tag, polygonal, cone -domed ones, and influenced Anatolian mausoleums architecture.

In accordance with this, the origin and main ways of forming the tomb tower in the territory of Persia and Anatolia was as follows - from Persian Pre-Islamic architecture (Chahar-tag, minaret) compositions up to Seljuq's tomb tower architecture, also compositional features and specifics of the monuments of the main regional centers were revealed in the article.

This can prove the conjecture, that the main architectural features are slowly changed, and the bases are similar, and the decorations can be changed more quickly and in a more variable way. The research also points out that almost all the possible spatial and structural variations have been manifested in a wide range of variations and combinations, in the early mausoleum architecture. Despite the similarities in the polygon of the plan, there are more differences in the construction and shape of domes.

This methodology has been set up for a specific example, therefore it is an important task to prove it in the case of further building groups in the future.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

FINANCIAL DISCLOSURE

The authors declared that this study has received no financial support.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey, in-depth interview, focus group interview, observation, or experiment.

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Resume

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The Brand and Sensation Relation as a Spatial Tracking in Shopping Malls

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Abstract

Purpose

When talking about spatial sensation, it is assumed that spatial sensation does not only occur with the sense of sight, but on the contrary, remembering with the sense of scent occurs more and permanently. The aim of this article is to examine the place of the relationship between brand and remembering in memory through sense of scent in the example of Trabzon Forum Shopping Mall spaces and circulation areas. In this context, the aim of the study is to discuss the relationship between space and sensation-perception in terms of architecture and psychology disciplines.

Design/Methodology/Approach

Visual, auditory, smell and sometimes touch feelings come to the fore in shopping mall spaces. This study is aimed at investigating the predominant effect of the sense of smell. The research method consists of three steps: sniffing, survey and remembering. In the study conducted with a random group of 15 people, ambient odor samples taken from the stores were used. There are verbal questions and a marking section on the shopping mall plans in the survey.

Findings

According to the research data, all of the participants are of the opinion that the scent contributes to the space and its permanence in memory. However, although the users do their shopping mostly from shopping malls isolated from outdoor conditions, the first store that comes to their mind when asked the question is the store they frequently use. On the other hand, the scents of some stores have the same effect on many users, even if they are not customers of the store.

Research Limitations/Implications

The research was carried out at a local level and in a shopping mall. It can be done in a wider environment in future studies.

Social/Practical Implications

Fragrance is an important factor in memory and store scents are important for the customer to visit the store and remember the place. It contributes to the memorability and branding of the place.

Originality/Value

The spatial experience offered through the senses paves the way for the relationship between space and brand. The sense of smell in spatial memory and branding is predominant than others.

Keywords: *Architecture, space, scent, spatial sensation, brand.*

INTRODUCTION

From the moment a person enters the boundaries of a place, he/she interacts with that space. This interaction occurs through the senses and from then on, the space becomes responsible for all the features that belong to it. Moreover, this responsibility is not just a visual responsibility contrary to popular belief. During the day, we see many places without thinking about them and constantly change positions. However, usually a few parts of these spaces remain in our minds and are carried into the future with us. What provides this is the meaning attributed to that space or the values that the space has. While these values add richness to the space or reinforce its meaning, they can also cause the space to take a bad place in memories. Since the space is open to multiple perceptions, it can exist by appealing to five senses at the same time. The high degree of influence of our five senses is one of the facilitating factors in leaving traces on its users.

The design process is not just a visual act, but an action that interacts with all senses during its use. For this reason, Lefebvre (1991) describes the space as living, perceived and imagined dimensions. Because space is the most important stage of the relationship with the senses and perception being an experiential situation.

Although a person has experienced many places his/her life, he/she remembers only some of them. The action of remembering occurs by recalling the data in memory. When evaluating this cognitive process, it should not be mistaken that the representation of the spatial environment is mostly visual. The imagination of space in the mind is the whole of visual, textural, auditory, olfactory and kinesthetic sensations. Contrary to what is believed, the visual data recorded related to the environment is not more dominant than the others. The separation and remembering of a space from others is not just the result of how it looks. The studies show that the permanence of a space in memory is not only related to the sense of sight and that the sense of sight is not dominant over other senses. The data belonging to the space flow from the all sensory organs of individual to the body (Downs & Stea, 2011; Erkartal & Ökem, 2015).

Haykır (2016) argues that seeing about this issue is biased. While the eye performs the act of seeing; it refers to the memory image of the mind previously associated with the object. Based on this, we can conclude that the sense of sight does not have superiority on its own. Because, there can be differences between the perception based on our past experiences and taken them as a reference, and existing and perceived environment. Although perception is encoded visually in the first place, the permanence created by the codes of the other senses in the mind cannot be ignored. It should not be forgotten that perception is the process of analysing and interpreting the environment through the sense organs by also using our past experiences, because the space is experienced not only by seeing, but by using all our senses.

The sense of sight has been generally considered as the most dominant sense throughout history. It is distinguished from other senses and is paired with the ideas of permanence, eternity and accuracy since Ancient Greece (Jonas, 2001; Erdoğan, 2012). The phrase “the eye of the mind” of Plato formed the judgment that seeing is the noblest and most theoretical sense. He argues that seeing is a situation that does not require physical contact unlike tasting, smelling and touching, and that it is a more philosophical situation than other senses, and that other senses are more primitive (Hein, 1990). This thought has come until today and has been supported by many thinkers.

Berger (2014: 7) states that “seeing comes before speaking, the child learns to look and recognize before starting to speak. However, in also another meaning, seeing comes before words. We find our own place in the world that surrounds us. We describe this world in words, but words can never change that we are surrounded by the world. We see the sunset every evening...” and he argues that seeing is the most important sense that makes us realize the existence of the environment. Cüceloğlu (1992) mentions that seeing is one of our primary senses and is a pioneer among the sense organs in the process of acquiring knowledge about the environment. Uçar (2004: 17) said that “the sense of sight is one of the most important senses of human beings. We try to define and understand the objects, events and situations around us by seeing them first” and he expressed the superiority of the sense of sight. Uçar (2004) also stated that Herbert Ritt talked about the importance of the eye and sight with the words “we can only find our place in the world we live in”.

According to Pallasmaa (2011), the growing hegemony of the eye appears parallel to the development of Western ego-consciousness and the increasing gap between the selfhood and the world. He explains this by saying “seeing separates us from the world, and unite with the other senses” (Pallasmaa, 2011: 32).

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It is possible to increase these discourses. However, it is controversial to make seeing such a hegemonic state. Seeing like any senses is also a special sense in itself, but it is possible to give many examples for the situations in which it brings to mind the idea “Could it be found so impressive without our other senses?”. If we had not heard the sound of the river running through the green of nature, if we could not taste a wonderfully decorated cake, touch and feel a silk fabric, or if we were deceived by the beautiful image of the top without the rotten scent of a rotten strawberry and made a mistake to eat in one move, it would still be enough for us and it would be such a superior feeling for us?

This becomes more impossible, especially when evaluating products in terms of design. Associating the perception of the design product with

only seeing may be unfair to all our other senses. While wandering an architectural design, we want to feel every beauty that we see with our eyes in depth with our other senses. We touch its stone, smell its inside, listen to the sound of the echo created by its voids, and enjoy it by living it. The Chinese philosopher Lao-Tzu says that there are things that we cannot see at the core of everything we can see, and that the self of human is not in his physical image (Ashihara, 1983; Aydınli, 1993).

The “anti-eye-centered” criticism, which was developed within the 20th century French intellectual tradition intended for the “eye-centered” way of perception and thinking of the West, was improved. Contrary to the “eye-centered” way of perception and thinking, current philosophy and belief styles in the east are much more spiritual, and it is considered the senses such as touching and hearing are more important and dominant than seeing (Ayna, 2011).

For example, in an elegant restaurant with an oriental effect dominated by burgundy, brown, black and wood, we want the place to welcome us aurally, with music that supports this visual effect in the background. Our noses probably look for woody, spicy, musky scents instead of fresh ones. Also, the suitability of the tissues for the environment will of course consolidate the situation further. For example; examining the environment in velvet-upholstered sofas and examining the same space while sitting in a cold iron chair, are completely different experiences. This example explains the relationship of space with the senses and that perception is an experiential state.

This study, which is based on the sense of scent, which is presented as an alternative to the sense of vision, which is very important in perception and sensation within the framework of the above-mentioned introduction, aims to explain that the sense of scent, which is more inferior to the sense of vision, plays an important role in our lives without being aware of it. In this context, the article, which focuses on the sense of scent, questions the relationship between smell and spatial perception through an attempt to trace. In this research, this scent tracing situation in the place was planned over the stores in Trabzon Forum Shopping Mall. The spaces belonging to the corporate stores in the shopping mall and their branded shop scents were used as the measurement tool.

SENSATION AND PERCEPTION

The definition of perception was handled together with informatics by Downs and Stea (1973) working on environmental psychology. Accordingly, perception is explained as the process of coding, storing, remembering and decoding the information received from the spatial environment. What is perceived is transmitted to the brain and interpreted by the brain through old experiences (Öymen Özak & Pulat Gökmen, 2009). In this context, perception can be defined as the process in which sensory inputs are interpreted and the organization of transforming sensory inputs into meaningful experiences (Sartain *et al.*, 1967: 259).

'Interpretation' inherent in perception is what makes perception special and subjective. It is a static function of the brain to receive sensory inputs and to process this information in the mind. The exposure of this process to various filters, internal and external influences are the effects that shape perception. As a result of these effects, the person interprets sensory inputs while processing them in his/her mind, and the verbal and behavioral reactions resulting from this constitute perception (Köseoğlu & Önder, 2010).

As a concept related to perception, sensation is the state of receiving stimulants such as sound, light and scent by our sensory sensors. Therefore, the perception is that we give meaning to the stimulants in these raw stimulants we receive. Sensation refers to instantaneous reactions to basic stimulants related to light, color, sound, scent and touch to which the sense organs (eyes, ears, nose, mouth and fingers) are exposed. Perception is the process of selecting, organizing and interpreting these sensations (Çakır, 2010).

Senses are the tools that provide us to perceive and understand the world. The realities in the world are perceived through our sense organs and according to the person's culture, past experiences, perception level, and physical, environmental and psychological factors. As a result of this perception, images are formed in the mind and these images are included in the process to take place in another perception (Ayna, 2011). There is no other way to understand it without sensing the world through the radar of our senses. Our senses define the limits of consciousness because life is discovered through senses. There may even be times when we risk life in order to experience new flavors. Different and sometimes risky experiences such as fighting the winds, grappling with the waves, going on safari, listening to loud music, buying exotic scents, and paying high amounts for cookbooks stem from our desire to gain new experiences by pushing the limits of our sensory organs a little more (URL-1,2019). Sensation is the process of receiving excitations such as light, sound and smell in the environment by the body. Morgan (1995) defines perception as the process of interpreting sensations and making them meaningful. During the sensation phase of the space, the human feels the physical components of the space, the phenomena within the space and the whole context through the senses such as seeing, hearing, smelling, tasting and touching. In the process of perception of space, the individual accesses some judgments and creates a subjective space perception after passing the data obtained during the sensation process through his/her own evaluation process. Therefore, individual differences may come to the forefront in the perception of the space (Yazıcı & Erdoğan, 2011). Because space is essentially an organic, lively and variable, transforming formation. It is not the context of the narrative created by the person. On the contrary, space is primarily the person's own body and is also his/her mirror. Space is an intersection that translocates between the people him/herself and his/her opposition (Lefebvre, 1991; Kurtar, 2016).

While perception is defined as the process of making sense by organizing general sensory data, perception is defined as the meaningful product that occurs at the end of the process of making sense, the process of making sense of phenomena and events around us by organizing and interpreting sensory data (Kızıl, 2000; Cüceloğlu, 1992). As stated by Amos Rapoport, perception is multi-sensor and consists of a combination of various senses (2004). The perceptual process develops after the sensory process, and both are very important in understanding and comprehending the environment (Ayna, 2011).

Apart from visual factors such as light, color, shape and texture in the space, thermal and auditory factors also play an important role in our perception of space. We perceive space with all our sensory organs and compare it with our experiences and experiences in our memory (Altan, 1993). Human's perception of space consists of the tactile, kinesthetic, visual and auditory spatial perceptions, and the total effect of perception styles in which memories and expectations are also effective (Aydıntan, 2001). The majority of perceptions are under the influence of expectations and stimuli are perceived in line with expectations (Haykır, 2016). Based on previous experiences, both objective and social environment expectations are developed and these expectations affect later perceptions (Cüceloğlu, 1997).

The sensation process is the state of the formation of an imagery about the space in the mind by forming the images formed as a result of the perception process shaped by psychological, cultural and social factors by associating them with personal memory (Ayna, 2011). It can be said that sensing the space is the abstraction and selfing of the concrete data in the space by making use of the past experiences and environmental conditions of the mind. Different people who experience the same space can feel completely different emotions. This may vary depending on their past experience, what the sensory data in the space correspond to the experiences in their minds, the physiological conditions of the environment and many factors that can be increased. For example, if a room consists of predominantly red-toned colors, it creates a very positive effect for the individual whose favorite color is red, for someone who has a bad memory about the color red, it creates a negative situation. The same can be discussed at the sound level. While a person who is not disturbed by loud noise may find it comfortable to live in a noisy house, the same place can make life unlivable for a person who does not tolerate noise. The simplest example is that everyone has different food preferences in daily life. Similarly, even if a scent is very beautiful and attractive, the scent when we have a bad experience will have a negative effect on us, no matter how aesthetically arranged in another place we are in at a different time.

In summary, the relationship between spatial perception and sensation can be experienced through five senses or leave a mark in memory. In this article, which spatially tracks the sense of smell, the close relationship between the spatial perception and sensation is questioned through

brands that use smell as an advertising tool. It is precisely for this reason that it becomes necessary to elaborate on the relationship between scent and space.

THE RELATIONSHIP BETWEEN SMELL AND SPACE

The individual, who has to breathe as long as he/she lives, continues the sniffing action, even if involuntarily. In a sense, smelling is a necessity. The scent that comes to our noses when we enter through a door or even just pass a door, can take us back to completely different places, memories and times.

The unique feature of the scent among the senses is that it goes directly into depths of the brain. However, for example, the senses of sight and hearing begin in related organs such as eyes and ears, and before moving to other parts of the brain, it passes to the thalamus, the middle part of the thalamencephalon, which functions as the transmission center. On the other hand, the sense of scent goes directly to the olfactory bulb without coming thalamus (URL-2, 2014). The scents enter the limbic system, and the limbic system is the place of momentary emotions (Chebat & Michon, 2003). Since the lobe, which is related to the scent, is part of the limbic system, some scents trigger basic emotional reactions (Karkin, 2009).

It is difficult to determine scents, and they are quite different from audiovisual signals (Schab, 1991). Scents are perceived first in terms of their satisfactions or dissatisfactions (Ehrlichman & Halpern, 1988; Buck & Axel, 1991). Emotional dimension has a great effect on the perception of scent (Engen, 1982), one possible reason for this is that odors enter the limbic system and this part of the brain is at the center of emotions (Spangenberg *et al.*, 1996). Scents also have the capacity to be stimulated. Lorig and Schwartz (1988) determined that the relationship between olfactory stimulation and satisfaction was not linear and a negative reaction tendency as the scents intensified, as a result of observing the effects of scents with EEG (electroencephalograph) (Chebat & Michon, 2003).

The sense of scent has different functions in human physical and psychological existence, such as informing us about potential dangers, giving information about food and drinks, taking part in mating, the harmony of a potential partner, and the interaction of emotions (Frasnelli & Proulx, 2019).

It is called the Proust effect that the scent revives memories. All sensory systems, except smell, need to get permission from the brain by sending a signal to the thalamus during perception. This does not apply to smelling. The scent directly stimulates the region of the body called the amygdala without interfering with the brain. Since this region also manages memories, it causes to occur the Proust effect (URL-3, 2011).

Bulgat (2012) stated that the sense of scent has a big place in our decision mechanism, although we are unaware of it. The spatial reflection of this situation has been sampled as “a house that scent of freshly baked cookies

makes us happy, but we are unlikely to be comfortable in a house that smells like a dentist's office." (Bulgat, 2012).

The brain works together with emotions and memory. When the scent reaches the smell center in the brain, the brain recognizes that scent based on the codes it has saved. Therefore, when a scent is perceived, experiences with that scent are recalled. This situation has the same effect both individually and spatially (Gezer, 2012). The sense of scent is as important as the sense of sight in the matter of people's imagination of the environment; inasmuch as, the ability to imagine does not have to be visual.

Scent also plays an important role in orientation and positional memory. In the study of Schifferstein et al. (2010), it was investigated whether people had the ability to locate a scent. In other words, the relationship between the place where they previously experienced a scent and the scent memory was examined. In the study conducted with 80 people, 10 cubes on a certain area were placed in different places with different scents and then these positions were changed, and the participants were asked to find the new positions by scent. According to the data of the study, it was concluded that the sense of scent of people was effective in remembering certain places and spaces. The study also shows that scent is an important factor in perceiving space and for the concepts of locating-direction finding, memory and being in the space.

Spaces are located in the mind with their scents. The scent informs a person about the space and strengthens the place in the memories of the space (Gezer, 2012). Spatial scent takes its source from the natural scent in the environment instead of getting it from another object. If space is a business, this gives it a positive tendency by consumers or people. Spatial scent affects mood, and leads to cognitive, behavioral and emotional reactions (Karkin, 2009).

Every place has its own scents. Scents are bridges that have been identified with a place and can take us to our memories; for example, disinfectant scent in hospitals, seaweed scent on the beach, wet tree scent in carpenter workshops, the scent of thinner and oil paint in painting workshops, bread scent in bakeries, more specifically the spice scent of Egyptian Bazaar, flower scent of Kaş, gulf scent of İzmir, coal scent of Zonguldak (Gezer, 2012). Most cities have strong olfactory elements such as open markets, fish stalls (Ittelson & Proshansky, 1974).

Pallasmaa (2011) explains that the long-term persistence of sense of smell in the memory is more dominant than retinal memory with the following example: "the most permanent memory of any space is often its scent. I can not remember the appearance of my grandfather's farmhouse door in my childhood; but I especially remember the resistance of its weight and the brightness of the wooden surface that was with full of scratches due to being used for decades, and the scent of the house that struck my face like an invisible wall behind the door. Every place has its own scent. A special scent allows us to re-enter a space that our retinal memory has completely forgotten; the nostrils awaken a forgotten image

and we enter into a vivacious daydream. The nose makes the eye remember.” (Pallasmaa, 2011: 67). The fact that persistence of this space in the long-term memory is associated with the sense of smell has an undeniable place in also architecture, and it is one of the elements that make up the character of the space.

Recognizing the effect of scent’s place in perception of space on people, brands also produce signature scents of their own and enable individuals who come to their stores to feel the scent, wonder about the space, and want to re-use the space after use (Karkın, 2009).

Studies on the effect of the use of scent on the perception of the person in the space may be more useful in understanding the relationship between scent and space. In a study conducted by the Chicago Scent & Taste Treatment and Research Foundation in Las Vegas in 1991, it was determined that a special scent sprayed around slot machines increased the money thrown into the machines by 45%. In a different study conducted by Hirsch, participants had sports shoes inspected in two different rooms, one of which was integrated with scent and the other was not. As a result of the research, 84% of the participants liked the shoes in the room with the smell of flowers more. On the other hand, a company that is a British shop specializing in elegant shirts still uses sensors in its stores that release freshly washed cotton scent on customers. On the other hand, although a well-known paint company offers all colors to children during painting, which is one of the most intense activities of the sense of vision, it uses its own scent trace in its dyes to appeal to permanent memory (Lindstrom, 2007).

In addition to all these positive examples, there are also spaces that can be scary for users in terms of scent. It is possible to turn such spaces into a more usable form with the scent. For example, an experimental group with fear of elevators was given scents such as lavender, green apple, vanilla, and it occurred a minimum 63% positive change in fear anxiety compared to the scentless elevator. In an experiment with MR devices, the users were offered two different experiences in the narrow cabin of the device, as scentless and scented with heliotropin. It was reported that the discomfort of the patients in the scented cabin was less than that of those in the scentless cabin (Ozan, 2016: 340-345).

Bradford and Desrochers (2009) conducted a study on the ethical presence and manipulative aspect of scent in marketing and in this study, the use of scent is included in the field of marketing in three different ways: first, scents placed on the product being sold, such as car scents; the second is perfumes that are sold directly (air fresheners, etc.), the third is scents produced or used for ambient ambience. The scent group studied in our study, too, falls under the heading ‘scents affecting the ambient ambience’ in the classification here. One of the conclusions about scents in our study is that whether we are aware of the scent or not, it is an emotion that we cannot suspend, and it directly depends on our memory and emotions. In the study being pointed out that some scents can provoke a reaction without consumers even realizing their presence.

It is emphasized that brands should be more careful in the use of scents, which they use as an advantage that contributes to the ambience of the space in a competitive environment.

It is understood from these examples that the effect of scent on space perception is undeniable. Even though we are not aware of it, scents have taken place in our minds by matching with the spaces we use. It is possible to give examples from the building types and building sections we use. For example; each type of building such as house, hospital, school has a unique and distinct scent. A similar situation can be exemplified by the fact that the scent of the house of each individual living in the same building and the same type of apartments is different.

As a result, within the scope of this study, similarly, the scent-space match in the mind and the presence of scent memory will be interpreted with concrete scent experiments. In order to make these comments, the scent spaces where the scent-space relationship will be examined have been determined as the stores belonging to the brands and the experimental group as the store users who are their customers in daily life. The reason for this is that scents belonging to corporate brands are offered to the customer without deforming the corporate scent of the brand, even if they are taken places in different places in different environments. This allows the customer to quickly recognize the brand in the global structure with its use of stereotyped colors and materials, its scent, and its music, even if they are in different cities or even in different countries. If it is considered that the groups that the study was conducted belongs to different parts of the society and whose common space relationships they use, brand scents have been considered as a suitable research subject in order to examine the relationship between scent and space.

THE RESEARCH AREA, PURPOSE AND METHOD

The aim of this article is to examine the place of the relationship between brand and remembering in memory through sense of scent in the example of shopping mall spaces. In this context, the study aims to discuss the relationship between space and sensation-perception in terms of architecture and psychology disciplines.

The interdisciplinary attitude presented by the study questions the relationship between the sense of scent and memory in the individual and perception pair, and reveals the synergy of brand and sensation as an example of spatial sensation (Figure 1). For this reason, it is assumed that spatial sensation does not only occur with the sense of sight, but on the contrary, remembering with the sense of scent occurs more and permanently.



Figure 1. Interdisciplinary attitude of the sense of smell.

Research Area

When talking about spatial sensation, it becomes important how many senses the space can reach. When it comes to sensation in shopping mall spaces, visual, auditory, olfactory and sometimes tactile feelings come to the fore. Thus, the spatial experience offered through senses and feelings paves the way for the maturation of the relationship between space and brand. One of these senses, scent, becomes an important means of remembering as a sense that deserves differentiation from a literature knowledge in which visual and auditory sensations are more prominent and debatable.

Shopping malls are structures that change and differ in consumption trends, usually by creating a unity of their own (Arslan, 2009). The sense of reality created by shopping malls becomes possible with the self-referential realization of the context in the understanding of space (Ibelings, 2002; Debord, 1996). The show environment and non-spaces created by shopping malls visually for their users become an important means of remembering when the sense of scent is activated.

While Lucia Jacobs (2012) suggested that the main function of scent perception was location / direction determination, she pointed out that specifically the olfactory system could organize external stimuli according to associative memory structures and the scents in the space were mapped in the mind. The article also touched on the relationship between brands as space and their scents with the rate of remembering in the minds of shopping malls.

Procedure and Participants

Scents, just like colors, music or textures, provide clues to pre-defined images of the space in our minds. As the representation face of the images in question, brands meet with their users through the senses in spaces with various characteristics due to the propaganda they offer. Brands frequently embark on a quest spatial differences and innovation to

increase their preferability and advertising power. While these quests affect the frequency of using the space of the user and it's remembered, they lead to a positive change in the consumption graph. Therefore, it is clear that spatial sensation has an important effect on the characteristic features of brands to take place in memory.

In sensory studies on Mall, participant selection was usually randomly selected. In studies conducted with the sense of scent, it is thought that we have the "ability to scent" physiologically, so the random selection is again preferred. It is seen that this selection method was chosen in many similar studies in the field (Chebat & ImMichon, 2003).

Morrin and Ratneshwar (2000), in their 27-participant pilot study to determine the scent to be given to a room for the experiment, chose to use the most pleasant scents among three scents from glass bottles. In their main study with a group of 50 students, they conducted a comparative study in scentless rooms with geranium scent, which is one of the scents that people enjoy. A total of 84 well-known and unknown brands were used in the study. Participants were subjected to two different memory tests in the scentless and scented room with these brands in order to remember the names of the brands that appeared on the screen. Finally, the participants were asked to fill in a survey about the hypothesis estimation, scent assessment of the room, brand familiarity and simple demographic information. In the results of this study, which draws a diagram similar to our research as method steps, it is concluded that the scented room accelerates the recall by half a second. The scented room was found to be more effective in recalling unknown brands, and it was judged that scents strengthen the memory.

In the 40-participant pilot study of Hamburger and Knauff (2019), that followed a similar attitude, the main test scents were selected through the scent samples. Afterwards, wayfinding experience was made with 24 participants and scents. Computer-based research consists of three stages as learning, wayfinding and control. In this study based on learning and remembering, the subjects, while finding their way in the virtual world, used the scents they smelled physically in finding direction by trying to remember them in the same maze in the next stage. As a result of the study, they argued that olfactory cues could be valuable for spatial orientation and that scents could be integrated into cognitive maps. Here, a similar method was used in the method related to sniffing, survey and remembering.

In this study, randomly selected participants experimented with 10 scent samples presented to them in Trabzon Forum Shopping Mall. The opinions obtained from the participants testing the relationship between scents and remembering were terminated with an interventional technique as a data collection section. The 15-participant experimental group consists of randomly selected individuals who have been to the shopping mall at least once. At this point, it was taken into consideration that the olfactory levels of the participants may differ from each other.

The method of collecting data obtained from participant groups consists of three stages (Figure 2).

In the first stage, a survey group was created with 15 randomly selected participants and they were asked to fill in the surveys presented to them. The survey participants consist of individuals who are daily users of the working area, who use Trabzon Forum Shopping Mall and who have used the stores and spaces within the scope of the study at least once. The surveys include the questions of the participants from which data such as gender, age, personal features, and interests can be obtained and questions related to the Forum Shopping Mall. The questions are multiple-choice and open-ended interpretative questions.

The second stage is the survey stage and consists of three sections. These sections are Written Section, Marking of Smell Areas on Shopping Mall Floor Plans Section and Smelling of Scent Samples Section.

STAGES OF THE STUDY	
I. STAGE: PARTICIPATION GROUP - WORKING AREA	
Participants and Surveys - Determination of the Working Area (Forum Shopping Mall)	
<ul style="list-style-type: none"> • Establishment of 15 participants experimental group and introduction of surveys • Determination of the working area as circulation areas and store areas in Forum Mall 	
II. STAGE: SURVEY	
Answering the Three-Section Survey by the Participants: Written Section, Section of Marking of Smell Areas on Shopping Mall Floor Plans, Smelling of Scent Samples Section	
<ul style="list-style-type: none"> • Answering the open-ended and multiple-choice question-answer sections of the surveys by the participants • Marking the smells they detected in the mall by participants, on the empty floor plans of the Forum Shopping Mall • Marking the smells they feel in the spaces and circulation areas on the shopping mall plan by the participants • Smelling the store smells belonging to the brand stores in Forum Shopping Mall without sharing their name and predicting what kind of store it belongs to, by participants 	
III. STAGE: EVALUATION	
Obtaining Results by Interpreting the Findings	
<ul style="list-style-type: none"> • The evaluation, interpretation and conclusion of the findings obtained from the written survey section, the plan examination section and the making smell section 	

Figure 2. Stages of the study.

In the first section of the survey, there are open-ended and multiple-choice questions to be answered. These questions are related to the personal features of the participants and the space usage in the Trabzon Forum Shopping Mall. The second section of the survey is a marking study on the floor plans of the Mall. The floor plans of the Mall were given to participants and asked them to mark the places they smelt and indicated what the scent was. While preparing the survey, the scents that stood out in the Mall were also identified (brand scent, cake scent, coffee scent,

leather scent, melted chocolate scent, popcorn scent, gasoline scent etc.) and floor scent plans were formed by marking on the floor plan maps. Afterwards, the scents marked by the experimental group in this section in the plan were compared with the determined floor scent plans. With this comparison, it was aimed to measure the scent awareness of the participants against these spaces and to understand the role of scent in reading the space.

In the third part, the store scents belonging to the brand stores in Trabzon Forum Shopping Mall made the participants smell without sharing brands' names, and asked to predict what kind of store they belonged to. These scent samples belonging to different brands were anonymized and coded as A, B, C, ... J in Table 3. For example, a participant smelt the scent of A and said that it belonged to a classic style menswear store. The comparison of the data provided by the participant with the store where the scent belongs was easily made. For this study, samples of essences used in the machines that gave off scent the store were requested from the stores (women, men, sports, stylish clothing, shoes, leather, etc.) of certain user groups in the shopping mall. The eye of the survey participants were closed and given them scents of these samples of essences, and they were asked to predict which type of store the scents belong to among the types of stores offered to them. In consequence of this stage, by looking at the rate of reflection and recognition of the scents belonging to the stores, it was examined which kind of store had a high olfactory detectability by the user group (in terms of female-male and total users) (Figure 3).



Figure 3. The participant smells fragrance samples belong to stores.

After the completion of the survey stage, it was passed on to the third and final stage. At this stage, the data obtained from the surveys were transformed into quantitative data and percentages and the findings were reached. Thus, the relationship between scent and spatial sensation was analyzed and visualized on the floor plans through numerical data through the Trabzon Forum Shopping Mall spaces and circulation areas.



RESULTS

In the first stage of the study, the questionnaire questions prepared and the answers obtained as a result of giving to the participants enabled the findings to be obtained. The paper, which aims to reconsider the relationship between scent and space, various numerical data were obtained within the scope of the method designed.

In the second stage of the research, the data obtained as a result of the survey conducted with 15 people actively using the Trabzon Forum Shopping Mall are as follows:

53.3% of the individuals participating in the study are women and 46.6 are men. 20% of the participants are 18-25, 46.6% of them are 26-30, and 13.3% of them are 51-60 in the range of age. Within the scope of the study, multiple-choice and open-ended questions are included. Groupings were made with multiple-choice questions and interpretations were developed through open-ended questions. In Table 1, the information about the personal features and shopping malls uses of the surveyed people is given.

Table 1. Survey section containing the personal information of the participants and general questions about shopping.

	WOMAN		MAN			
Your Hobbies	Music, theater, performing arts, yoga, pilates, traveling, cinema, watching movies, reading books, photography, skiing, painting, tennis, swimming, making puzzle, shopping.		Driving, reading books, swimming, watching movies, taking care of nature, traveling, taking care of flowers and animals, playing football, taking photos.			
Your Age	Age	Number of People	Age	Number of People		
	18-25	2	18-25	1		
	26-30	4	26-30	3		
	31-40	1	31-40	2		
	41-50	-	41-50	-		
	51-60	1	51-60	1		
	Total	7	Total	8		

		WOMAN		MAN		TOTAL	
		Person	Percent	Person	Percent	Person	Percent
Where would you prefer to do your shopping the most?	Shopping Malls	7	%87.5	6	%85.7	13	%86.6
	Street Stores	-	-	1	%14.2	1	%6.6
	Online	1	%12.5	-	-	1	%6.6
How often do you visit the shopping malls?	1-2 Days A Week	3	%37.5	4	%57.1	7	%46.6
	3-4 Days A Week	2	%25	2	%28.5	4	%26.6
	1-3 Days per month	2	%25	1	%14.2	3	%20
	Rarer	1	%12.5	-	-	1	%6.6
Do you have a brand preference in shopping?	Yes	4	%50	4	%57.1	8	%53.3
	No	2	%25	3	%42.8	5	%33.3
	In some items	2	%25	-	-	2	%13.3

87.5% of the women and 85.7% of the men responded the stores in shopping malls to the question of “Where do you prefer to do your shopping the most?”. Frequency of use of shopping malls of the users is mostly (46.6%) 1-2 days in a week. 50% of women responded yes, 25%

of them responded no, and 25% of them responded in some items to the question of “Do you have a brand preference in shopping?”. 57.1% of the men responded yes and 42.8% responded no to the same question. While 33.3% of the total number of participants does not prefer a brand, the majority of the rest of participants have a brand preference.

While 62.5% of female participants indicated the market from the first store, market or shop that comes to mind in Trabzon Forum Shopping Mall, 71.4% of men considered the mass merchandising. In the ranking of the most used stores, markets or shops, female participants preferred the market with a rate of 62.5%, whereas male participants preferred the mass merchandising with a rate of 71.4%.

The female participants exemplified the flower/fruit (62.5%), coffee (50%) and the scent of an individual (50%) for the three scents they liked most in daily life. The male participants, on the other hand, exemplified the scent of soil/rain (71.4%), perfume (57.1%) and bread/cake (42.8%). Women responded as sweat (75%), sewage (50%) and garbage (50%) for the scents that they disliked, while men responded this question as sewage (57.1%), sweat (57.1%) and rotten food (42.8%) (Table 2).

Table 2. Survey section answered with the aim of examining the relationship between the scent and space.

	WOMAN			MAN		
List the first 5 stores, markets, or shops that come to your mind at Trabzon Forum Shopping Mall.	Migros	5	%62.5	Boyner	5	%71,4
	Mango	4	%50	Mudo	4	%57,1
	Boyner	3	%37.5	Migros	3	%42,8
	İpekyol	2	%25	Polo Garage	2	%28,5
	Twist	2	%12.5	DS Damat	2	%28,5
List the top 5 stores, markets, or shops you visit in Trabzon Forum Shopping Mall.	Migros	5	%62.5	Boyner	5	%71,4
	Mango	4	%50	Mudo	4	%57,1
	Boyner	3	%37.5	Migros	4	%57,1
	Mudo	2	%25	DS Damat	2	%28,5
	Penti	2	%12.5	LC Waikiki	2	%28,5
Express the smell of 3 things you like the most in your daily life.	Flower/fruit	5	%62.5	Soil/rain	5	%71,4
	Coffee	4	%50	Perfume	4	%57,1
	Individual smell	4	%50	Bread/cake	3	%42,8
Express the smell of 3 things you do not like in your daily life.	Sweat	6	%75	Sewage	4	%57,1
	Sewage	4	%50	Sweat	4	%57,1
	Garbage	4	%50	Rotten Food	3	%42,8

		WOMAN		MAN		TOTAL	
		Person	Percent	Person	Percent	Person	Percent
Do you think that smells have a guiding/inviting effect during your shopping?	Yes	8	%100	6	%85.7	14	%93.9
	No	-	%0	1	%14.2	1	%6.6
Do you think there is a relationship between smell and memory?	Yes	8	%100	7	%100	15	%100
	No	-	%0	-	%0	-	%0
Do you think that smell contributes to the space?	Yes	8	%100	7	%100	15	%100
	No	-	%0	-	%0	-	%0

While all participating women thought that scents had a directing / inviting effect during shopping, 85.7% of the men answered this question positively. All of the participants thought that there was a relationship between scent and memory and that scent contributed to the space.

Participants were asked to mark the scents they noticed in the shopping mall on the floor plans, with the discussion of scents on the Forum Shopping Mall map, which constituted the second part of the survey. It was determined that in this section, textile, coffee, corn, cake, food scents, feminine shop scents, masculine shop scents, leather scent, textile scent, room scent and WC scent were noticeable by users.

The place of scent in spatial perception was also revealed in a distinction in this part of the study. While determining the scent in the floor plans, women generally marked the scents coming from the men's stores, whereas the men mostly marked the scents coming from the women's stores as the scents they noticed. At this point, it can be interpreted that gender may have also an effect on the perception of scent and thus the perception of space. It is important to take this into consideration while designing to guide the users (Figure 4-6).



Figure 4. Ground floor of Trabzon Forum shopping mall and smells.



Figure 5. First floor of Trabzon Forum shopping mall and smells.



Figure 6. Second floor (food hall, game hall and cinema) of Trabzon Forum shopping mall and scents.

In the last part of the surveys, the participants smelled from the scent samples of the space belonging to the stores. As a result of this section, 87.5% of the female participants firstly emphasized that they felt the scent of a men's clothing store (-J-), whereas 71.4% of the male participants stated that they felt the scent of the leather and shoe store (-C-). 73.3% of the total participants emphasized that they felt the scent of men's clothing (-J-) and shoe/leather store (-C-) (Table 3).

Table 3. The correct estimation rates of the brand scents smelled by the participants.

BRAND SCENT		WOMAN	MAN	TOTAL
A	Women Elegant Clothing	% 75	% 57,14	% 66,6
B	Shoe Store	% 12,5	% 14,28	% 13,33
C	Shoes, Leather, Outerwear	% 75	% 71,42	% 73,33
D	Unisex Casual, Sportswear	% 37,5	% 42,85	% 40
E	Shoes, Sport, Bag	% 25	% 42,85	% 33,33
F	Home textiles	% 50	% 28,57	% 40
G	Men's Elegant Clothing	% 62,5	% 57,14	% 60
H	Men's Elegant Clothing	% 62,5	% 57,14	% 60
I	Women Elegant Clothing	% 50	% 42,85	% 46,66
J	Men's Casual Clothing	% 87,5	% 57,14	% 73,33

As a result of the findings obtained from the studies, certain data were obtained. According to these data, all of the participants are of the opinion that the scent contributes to the space and its permanence in memory. However, although the users mostly shop from shopping malls that are insulated from outdoor conditions, the first stores that come to mind when asked are the stores they use frequently. On the other hand, the scents of some stores have the same effect on many users, even if they are not customers of the store. They defined such stores with various attributives such as “attractive, inviting, pleasant, beautiful, and intriguing”.

The users stated in their comments that they felt the guiding/inviting effect of the smell on the space by making explanations as “While passing through the Tantitoni store (a kitchenware store), the scents of the cake coming from inside caused me to enter.”, “Since it is more pleasant to visit the stores that smell nice, and shop there, I think this has an impact on the rate of space usage.”, “I feel there is a more inviting atmosphere in spaces where there is a scent of coffee.”. In addition, they gave examples of the relationship between the scents they felt and the memories they experienced, and stated that they thought that the scent contributed to the space. They made explanatory interpretations about the contribution to the role of the scent in remembering space, and its relationship with the memory with the discourses like “It embodies the image of the space.”, “The scent of the place can change the current mode of the person. It can have a more pessimistic or, conversely, positive effect. I think I want to go to the spaces more where I like their scents.”, “The scent adds perceptual richness.”, “The space becomes catchy.”, “and the scent of wood reminds school desks. The smell of stones reminds us of the game days on the street, and also streets. The scent of wet soil reminds Anatolia.”

Another interesting finding can be reached with the result of the study conducted with scents samples. Although it was not among the frequently visited stores of the participants, many users responded the question “Do you think that scents have a guiding effect during your shopping?” by giving examples of specific men’s shops scents. Despite not being a

customer of this brand, one participant made a comment about the -G-shop that "The scent of -G-'s perfume is very inviting, it is very pleasant to come in and stay in that space for any reason." Although the same brand did not rank among the top three stores among the most used stores in the survey conducted with women and men, it was one of the two most accurately predicted shop scents with a rate of 73.3% in the section where the samples in the second stage of the study were smelt. From here, it is possible to observe how the ambience of the store and the scent used positively add value to the recognition of the brand. Adams and Douce (2017) also talked about the positive effects of ambient scent in the store on the user. The scent of the store accelerates the perception of the place and increases the permanence in memory. The convenience of the scent with the ambience strengthens the place of the store in the user's mind as it is supported by the space.

Another scent that is most correctly predicted by the participants with a rate of 73.3% is a leather store which is a shoe, leather and outerwear store. It is distinguishable from other brands of the same store type due to its spatial volume and dominant scent.

Finally, although there are many women's clothing stores, a women's clothing brand that makes a difference with a 66.6% awareness rate stands out. What distinguishes it from others is the harmony of the brand line with the store ambience and store scent. It was observed that this brand increased the recall rate on the participants.

CONCLUSIONS

According to the data obtained as a result of the research problem presented in this article, scent is a major factor in memory. The priority in perception increases through the combination of the phenomenon of space and remembering (Chebat and Michoni, 2003). Ambience and scent effect play an important role in the duration of users' orientation to the store (Spangenberg *et al.*, 2005). It can be deduced from these two results that scent is a big factor in memory. In the case of the -F- store, the users wanted to use a store they were not a customer of because of its scent and the high rate of estimation was an example of the permanence of the scent in the memory. In the case of the leather store, the fact that leather, which is a product encountered in daily life, increases the identification in the mind, and the high estimation rate indicates the effect of the scent on memory.

Looking at the estimation rates of the scent samples by female and male participants, another result is that the scents with the second and third prediction rates of female participants and male participants are again those of two elegant men's clothing stores and one female elegant clothing store. From here, it can be concluded that the permanence of the scents of men's clothing stores in the memory is higher than the other stores. Because 3 of the 5 most predicted stores of all participants are men's clothing stores.

As a result, it can be considered that store scents are an important factor for the customer to visit the store and remember the space. It is also an important for the contribution to the permanence in mind and the branding. From here, it is possible to understand the importance of the effect of the scent on the use of space.

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CONFLICT OF INTEREST

There is not any conflict of interest.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this research, the necessary permissions were obtained from the relevant participants during the survey for questionnaire, photographs, and drawings (rearranged by authors) used in the article.

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Resume

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Are you an Architecture Student? (Mimarlık Öğrencisi Misin?)


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MİMARLIK ÖĞRENCİSİ MİSİN?



HAVVA ALKAN BALA

YEM  Kitabevi

The cover of the book "Are you an Architecture Student?" (Mimarlık Öğrencisi Misin?)

The book named as ““Mimarlık Öğrencisi misin?” (Are you an Architecture Student?)” written by Havva Alkan Bala, published by YEM Publishing in 2020 is a guide for architecture students. The book is a simple, sincere guide to architecture students and even educators with both its content, design, and approach. While guiding, the book does not dictate, show the correct path, or be distant from the reader. On the contrary, the author uses the language of "we" with an empathetic approach. This book is useful for architectural literature since architecture is a multidimensional and multidisciplinary profession in terms of its scope and components. The richness of the area where the profession has spread is reflected in the meaning of architecture. Architecture; the solidified music for Schelling (1859, p. 177), the great book of humanity to be read again and again from marble pages for Victor Hugo (1831, p. 229), for Hegel simply everything (Tschumi, 1998, p. 220), the way of thinking for Leach (2005, p. viii), for Barthes, it is always a dream-an expression of a utopia and, a function-an instrument of a convenience (2005, p. 166), for Mayne (2005) a way of seeing, thinking and questioning our world and our place in it.

Vitruvius, perhaps the first architectural theorist in history, expressed the multi-layered characteristics of the profession, and education in this context, exactly two thousand years ago. He considers talent important to be a good architect but could not be an architect only with talent without education. According to him, architecture is omniscience, that is, it requires knowing and comprehending everything (see: Figure 1). Therefore, an architect; must study geometry, history, philosophy, music, medicine, law, astrology, and astronomy. Thousands of years ago, the need for the architect to be versatile stands in front of us in an unchanged way today. This requirement can be attributed to the profession being nourished by science and art, its being at the centre of life, and inevitably placed in every moment of life.



Figure 1. Roman mosaic, depicting the architect and his assistants, Bardo Museum, Tunisia (MacDonald, 1986, p.35).

Although education, which is based on various grounds in the theoretical and practical field, ultimately provides professional gains, it brings unique problems and difficulties for all actors involved in education. Architectural education has been pedagogically in the focus of researchers from different views, and it has been tried to develop methods and approaches aimed at solving the problems and improving education. It is noteworthy that the target audience of the most studies and research subjected to architectural education is educators. However, students are also participant of the education process. In addition to the challenging and stressful nature of the education, the demanding characteristics of the training program structured with theoretical and practical content, which requires skills, can be shown as the source of the problems that architecture students sometimes experience during their education. From this point of view, it is seen that the book makes a difference in the literature on architectural education by making architecture student the subject, with the language that directly addresses him. In essence, the book aims to take care of those who are new to the adventure in architecture, to give them an idea of what they may encounter during their education, and in a way to be a companion. The intention of the book is not to give some advice to the beginner, but to convey what awaits him/her at the beginning of the road, to guide him on how to complete this adventure more efficiently. Another remarkable aspect of the book is the author's appeal as an owl to those who have just started their journey in architecture. The owl metaphor is used to represent the situation of the young architect candidate and even to facilitate his/her understanding of this situation. Obviously, this representation is quite effective and convenient by the characteristics of an owl are attributed to the architect such as its wisdom, superior point of view, and, its distinctness from the others with his living at night (see: Figure 2).



Figure 2. An owl figure with the questions in his mind from the book (Bala Alkan, 2020, p.138).



In terms of its general fiction, it is seen that the structure of the book consists of three main parts. The first part is devoted to understanding architecture. This part is structured with questions such as "What is architecture?", "Is it a profession that can be done by those without talent?", and the question of "Interior or Exterior?" that every architect heard at least once during his career from the first day of his/her education. In this section, the extraordinary nature of the education environment is also emphasized through the answers. As a matter of fact, for most beginners, the studio environment is a medium for discovering oneself and the limits of what they can do. The studio has its own rules, and sometimes the beginner may find it difficult to cognize this. In the meantime, although studying in the studio environment seems fun, enjoyable and the environment sounds unregulated in a way, *"architecture is too convivial to be done seriously, and it is too serious to be disregarded."* (Bala Alkan, 2020, p.33).

The second part, which prepares the newcomer in the metamorphosis for the moment he will emerge from his cocoon, is devoted to the practices of being an architect. Preparation is supported by giving an implicit reading list in the section where mental and behavioral preparation is transferred in the education process. The book calls for the beginner to "be different" through the common features of the characters presented in the readings, as by pursuing what you believe, but not to be contrarian, do it creatively in thought and action. Mallgrave (2010) interprets the difference of the architect from an even more different (!) perspective. According to him, the architectural profession requires a wide range of technical skills, professional knowledge and equipment. What is required to be successful in the highly competitive profession is to be creative. Creativity, as the ability to respond to a known problem in a different way than ever, is the playground of the architect. Emphasizing that creativity is a learnable skill, Mallgrave (2010) states that the function of the mind of architects to process certain information is highly developed with his study in neuroscience, and defines this mind that works differently as the "architect's brain". The profession of architecture requires reading, seeing, and traveling a lot, in a way, to accumulate everything about human, nature, and existence. The architect's brain has the cognitive skills to process, associate, understand and interpret the accumulated things, and in some cases, it has evolved to manipulate them in an unusual way.

The third part of the structure is on the post-diploma phase. The common concern of every architect candidate is what he or she will do after graduation. Perhaps the main reason for this concern is to break away from the comfortable and unlimited environment of the studio and become aware of the reality framed by the boundaries that can be encountered sometimes under the name of regulation and law, sometimes economy, sometimes as opportunities and stakeholders. However, the book did not forget to prepare owls on this subject and presented a list of things to do.

It is clearly understood that, behind this book which simply comes up with the question of "Are you an architecture student?", lies the academic experience of Havva Alkan Bala, as well as the experience of an educator, which has been the gain of many years. Book: certainly will guide the owls who have just started their journey and especially those who intend to become an owl by getting ready to the journey. As an academic, working in the field of architectural education, what this book makes me think is how common our concerns in education and how universal values of architectural education are. At the end of this brief critique, I wish to contribute to the student readers' journey of architecture, so my last word to the owl who wants to be able to fly higher is spread your wings widely and fill them full of wind.

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Resume

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