HURİYE ARMAĞAN DOĞAN

THE ROLE OF CULTURAL MEMORY IN THE STRATEGIES OF ADAPTIVE RE-USE OF BUILT HERITAGE: A CASE STUDY OF THE MODERN MOVEMENT

DOCTORAL DISSERTATION

Kaunas
2020

KAUNAS UNIVERSITY OF TECHNOLOGY

HURİYE ARMAĞAN DOĞAN

THE ROLE OF CULTURAL MEMORY IN THE STRATEGIES OF ADAPTIVE RE-USE OF BUILT HERITAGE: A CASE STUDY OF THE MODERN MOVEMENT

Doctoral Dissertation
History and Theory of Art, Humanities (H 003)

2020, Kaunas

This doctoral dissertation was prepared at Kaunas University of Technology, Institute of Architecture and Construction, during the period of 2016–2020.

Scientific Supervisor

Assoc. Prof. Dr. Vaidas PETRULIS (Kaunas University of Technology, History and Theory of Arts, Humanities, H 003).

Doctoral dissertation has been published in:

http://ktu.edu

Editor:

English language editor-Brigita Brasienė (Publishing house “Technologija”)

Lithuanian language editor-Aurelija Gražina Rukšaitė (Publishing house “Technologija”)

KAUNO TECHNOLOGIJOS UNIVERSITETAS

HURİYE ARMAĞAN DOĞAN

KULTŪRINĖS ATMINTIES VAIDMUO URBANISTINIO PALIKIMO ADAPTUOTO PAKARTOTINIO NAUDOJIMO STRATEGIJOSE: MODERNIZMO ARCHITEKTŪROJE TEMINIS TYRIMAS

Daktaro disertacija
Menotyra, Humanitariniai mokslai (H 003)
2020, Kaunas

Mokslo daktaro disertacija rengta 2016–2020 metais Kauno technologijos universiteto Architektūros ir statybos institute.

Mokslinis vadovas

Doc. dr. Vaidas PETRULIS (Kauno technologijos universitetas, humanitariniai mokslai, menotyra, H 003).

Redagavo:

Anglų kalba-Brigita Brasienė (Leidykla „Technologija“)

Lietuvių kalba-Aurelija Gražina Rukšaitė (Leidykla „Technologija“)

"*It is as the centralisation and protectress of this sacred influence, that architecture is to be regarded by us with the most serious thought. We may live without her, and worship without her, but we cannot remember without her."*

The Seven Lamps of Architecture, Ruskin, 1849

"Old places seem both to trigger memories people already have, give specificity to memories, and arouse curiosity about memories people do not yet know."

Why Old Places Matter, Thomson M. Mayes, 2013

TABLE OF CONTENTS

LIST OF PICTURES

TABLES

CHARTS

LIST OF DEFINITIONS

Adaptive Re-Use: one of the interventions which can be implemented in a building when it has lost its original function, and there is a need to assign a new function towards it; therefore, it can continue its life.

Built Heritage: the term defines the environment which has a historical significance that was structured by the human beings.

Cultural Heritage: according to UNESCO's Draft Medium-Term Plan 1990–1995, "The cultural heritage may be defined as the entire corpus of material signs - either artistic or symbolic - handed on by the past to each culture and, therefore, to the whole of humankind. As a constituent part of the affirmation and enrichment of cultura1 identities, as a legacy belonging to all humankind, the cultural heritage gives each particular place its recognizable features and is the storehouse of human experience."

Cultural Identity: a sense of belonging to a specific group based on various cultural categories, and it is constructed as well as maintained through the process of sharing collective knowledge.

Cultural Memory: a collective concept for all knowledge that directs behaviour and experience within the framework of the society.

Eye Tracking: a research tool, which is based on measuring the eye movements of the subjects.

Language of Architecture/Architectural Language: the expression that architectural objects contain to communicate their meanings.

Modern Movement: architectural discourse of the 20th century, which was born after the industrial revolution and highly influenced by universality, functionality, and rationality.

Monument: according to Cambridge Dictionary, it is a structure or a building that is built to honour a special person or an event with commemorative purposes.

INTRODUCTION

According to the Faro Convention (2005), cultural heritage is defined as a group of resources inherited from the past, which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. Therefore, it is possible to state that one of the essential characteristics of cultural heritage is its interaction with people. Cultural heritage is a representation of life for societies, which they have developed over time and passed from generation to generation by customs and practices. In that regard, the impact of people on the evaluation of heritage is essential, because heritage can be meaningful as long as people attach memories and meaning to it.[5] However, the distinction between cultural heritage and commemorative monument is a problematic topic due to the impact of the perception of different individuals. When people are requested to define the meaning of cultural heritage regarding their own perception, different indicators play a role in their appraisal, and most of the time people refer to commemorative monuments as cultural heritage. This issue is consistently obscuring the protection process of the built heritage, especially when people cannot establish a place attachment to the environment. When society does not assess artefacts as valuable, they do not put any effort in safeguarding them. Modern Movement era heritage is one of these artefacts, which has been affected the most, because while the experts acknowledge it as cultural heritage, in most cases, due to its architectural language, the perception of non-experts differs and is rather low. Therefore, its architectural merit is not appreciated by the society in a way it deserves neither as an artefact nor as a cultural heritage.

Over the last decades, there has been extensive researches conducted across various disciplines regarding memory (Peters, 2006; Den Boer, 2008; Erll, 2008; Ardakani, Oloonabadi, 2011), different architectural languages (Salingaros, 2013; Djalali, 2017; Marotta et al., 2017; Rapoport, 2019), perception of the environment (Mesch, Manor, 1998; Lange, 2001; Jens, Steen Jacobsen, 2007; Ramkissoon, Smith, Weiler, 2013) and how experiences and memories affect the place attachment for people (Vaske, Kobrin, 2001; Lewicka, 2008; Brown, Raymond, Corcoran, 2015; Anton, Lawrence, 2016). However, the impact of the perception and memories in the evaluation of cultural heritage is not widely studied. Especially the effect of the architectural language and the characteristics of architecture, which influences people's perception of built heritage, and how it can be used in practice for sustainability or as a strategy of adaptive re-use are questions that should be answered. In that regard, **the relevance of this research** has derived from an attempt to answer these questions. Furthermore, the research contains the establishment of a model

[5] This section contains information from the article of the author with the details below:
Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas, Lithuania. *Journal of Cultural Heritage and Sustainable Development*, 9(3), 430–443.

which can be implemented as an adaptive re-use strategy. In the course of developing the model, different experiment methods were performed, such as the usage of eye tracking glasses. The use of this technology brings a different dimension to the research by including digital humanities and biometrical measurements, which gives a **scientific and practical novelty to the research.**

The aim of this research is to perform analysis to understand the role of cultural memory in the formation of architectural languages and develop a model to measure perception of people in their assessment of cultural heritage, which can be used in the adaptive re-use strategies of built heritage, specifically Modern Movement heritage. **The objects of this research** are the built heritage of Modern Movement in Ankara and Kaunas. The analysis of Modern Movement is valuable and at the same time instructive for this research in order to understand the assessment of people of cultural heritage. A better understanding of this phenomenon would allow specialists to proceed from a more informed perspective regarding adaptive re-use of built heritage and comprehend the perception of the society towards it. The spirit of the Modern Movement primarily originates from the experiments; therefore, the use of this built heritage as a subject of the experiments matches with the ideals of the style. The reason for selecting these cities is related to the fact that, even though they went through a similar process around the same period (both cities became capitals after the WWI), they both embody different cultural and environmental backgrounds. Furthermore, the architectural language of the Modern Movement which was adopted in both cities differs. While the language in Kaunas contains more local tendencies and traditional expressions, in Ankara, there is a detachment from the elements in architectural language, which presents any kind of reference to the pre-republican past. Therefore, the focus on these cities facilitates the understanding of the formation of different dialects of the Modern Movement in different geographical areas and the impact of traditions and cultural memory on the architectural language (**Chart 1**.).

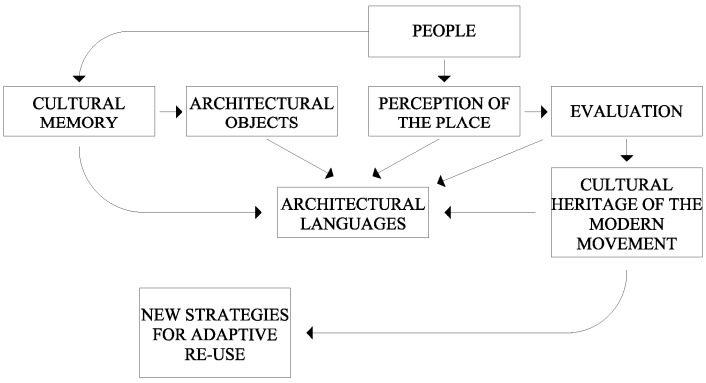


Chart 1. The relationship between the research concepts of the dissertation

Seeking to understand this phenomenon, the research addresses **six research questions:** a) What does memory mean and how does it correlate with the perception of the place? b) What is the language of architecture and what are different types of languages that can be used in architecture? c) How can memory be reflected in the language of architecture? d) What are the essential aspects of evaluating cultural heritage? e) How is the language of the Modern Movement and its perception of the society affected by the paucity of memento value? f) Is it possible to implement the knowledge gained by the language of the Modern Movement on the establishment of new strategies in adaptive re-use?

Objectives and Statements of the Research

Objectives

-To evaluate the effects and the reflections of the memory on the formation of the language of architecture.

-To analyse the indicators which have an impact on the perception of people regarding their appraisal of architectural languages and the cultural heritage.

-To perform comparative research on the Modern Movement in Ankara and Kaunas.

-To prepare the inventory and typology of different façades, façade elements, patterns and ornaments used in Kaunas that are related to the cultural impacts.

-To develop Cultural Heritage Perception Potential Model (CHPP) which can predict the assessment of cultural heritage by analysing the façades of buildings for adaptive re-use strategies.

Statements

- The value which is attributed to cultural heritage is conditional, and it can only be understood by its reflection in the societies. Different societies express their identities and their memories in different ways, and there is a direct connection between expression and perception with the identity. Therefore, buildings, artefacts and environments and the meanings they represent are often integrally tied to the identity and the memories of the society.

- Even though universality, functionality and rationality have profoundly influenced the idea and roots of 20th century architectural discourse, it can be stated that these principles cannot be adopted easily in every society, especially not in the ones with strong vernacular architecture and architectural traditions.

- The decision-making process of adaptive re-use can have various constraints, which need to be appropriately identified. However, in most cases, the impact of the invisible social context while considering the adaptive re-use has been given a lower priority because of the fact that it is hard to measure. However, it is possible to develop a model, which can measure the invisible social context.

Structure of the Research

This research is organised in different sections that proceed from a general overview of the basic concepts to the evaluation of more specific cases. In this respect, the structure of the research is organised into three different chapters, which can be summarised as follows.

The first chapter of the research contains the necessary background on memory and the relationship of memory with architecture. It addresses the meaning of memory for people, the different types of memories and the connection between memory and place. Furthermore, the research acknowledges the subject of identity in the formation of societies and the impact of cultural identity on the establishment of architecture. Moreover, this chapter investigates the impact of memory on the perception of architecture and cultural heritage and why it is essential to involve the course of memory while evaluating the heritage.

The core of the second chapter of this research is the language of architecture. In this chapter, the research focuses on the form and pattern languages which have been adopted in architecture and how they were expressed in the language of Modern Movement. It explains the main ideas that have been influential in the evolution of the urge to preserve diversity and authenticity within the scientific and rational culture of the industrial society in the Modern Movement era and how it established different dialects in the language of architecture. It as well alludes to the subject of ornament and how the usage of ornament has changed over time.

The third chapter is devoted to the adaptive re-use strategies and development of the model. It analyses the characteristics of adaptive re-use and, furthermore, the use of adaptive re-use in sustainable development. The chapter as well investigates the perception of people regarding their environment in different aspects. Moreover, in this chapter, a model is developed that can measure the perception of people and the assessment of cultural heritage by analysing the façades of buildings for adaptive re-use strategies. The creation of the model is aiming to facilitate the decision making process of adaptive re-use. By the development of Cultural Heritage Perception Potential Model (CHPP), the perception of people regarding the appraisal of cultural heritage can be measured by analysing the indicators which have an impact on their decisions. The indicators which have been applied in the model were decided by two different experiments. After developing the model, the chapter attempts to maintain different strategies, which can be applied to Modern Movement heritage.

Methodology

The research integrates theories from different disciplines and constructs a more comprehensive understanding of the problem with the assistance of the analysis of a case study and qualitative experiments. As Merriam (1998:19) describes, a case study design is employed to gain a deeper understanding of a situation. Therefore, a case study involving the language of Modern Movement and its paucity of memento value plays a huge role in understanding the perception of society of cultural heritage. Moreover, a case study is supported by experiments, which give an insight into the strategies that need to be adopted in adaptive re-use.

a) Description of the Implemented Theories

One of the main theories which was implemented in this research is the theory of the pattern language in architecture, which was proposed by Alexander and successively developed by Salingaros. As Salingaros (2006:222) describes, pattern language involves the interaction of human beings with their environment, and it is appropriate to local customs, society and climate where the building is located. It is a set of inheritably tried-and-true solutions that optimise human life and the sense of its well-being. Therefore, the pattern language that people use when they construct the environment they live in is intimately connected to their traditional and vernacular architecture. However, pattern language is not just the way people build their environment and buildings, but it is as well used in small details, such as ornaments and symbols, which have been implemented to the façades of buildings. The character of ornaments and symbols is intimately connected with the way people express themselves and their cultural memories. As a result, the way people express themselves with their cultural elements as well reveals the way people perceive their environment.

The expression by ornaments lost its importance in the discourse of the Modern Movement. According to Venturi (1972:7), the critical crisis in the contemporary norm happened when modern architects righteously abandoned ornament on buildings and when they consciously started to design buildings that were an ornament itself. In this way, it brought a different way of expression in architecture in its contemporary discourse, because people still needed the identification of structures, with or without the existence of ornaments. However, the new form of expression in architecture with post-modern approaches as well established an immense amount of discussion with the primary discourses of the Modern Movement, which assert 'Less is more' and 'Form follows function'. As Venturi (1966:16) points out in his theory of Complexity and Contradiction in Architecture, a logical architecture needs to evoke various levels of meaning and combinations of focus that its space and its elements could become readable and workable in several ways at once. Therefore, it is possible to combine functionality, traditions and cultural values while following a modernist approach and establish a valid architecture. Moreover, it is possible to combine both of the theories of Alexander and Venturi to analyse buildings, prove that if the architecture is functional for the users, it as well requires reflecting the needs and values of users by incorporating sensitivity to the context and environment.

Furthermore, Paivio's theory of dual coding is a crucial concept in this research, because the theory is based on the picture superiority effect, and Paivio claims that visual information has advantages over words regarding coding and storing things (Defetyer et al., 2009:265). Visual and verbal perception act as two distinct systems, and visual stimuli gives more information than verbal codes. Regarding Paivio's experiments on associative recognition memory, people can remember shown objects much better, and they can indicate more information on the concepts they need to remember if the objects are demonstrated as images rather than texts. Therefore, it might be possible to state that the existence of ornamentation and cultural symbols on

the façades of the buildings has an impact on the way people perceive the environment and their culture.

In order to understand the indicators that have an impact on the appraisal and perception of the society on cultural heritage, the language of the Modern Movement from Berlin, Ankara and Kaunas is tested on a focus group by following the methodology of Galindo and Rodriguez (2000:49) on environmental aesthetics and psychological well-being, where they implemented the extensive use of photographs to examine respondent awareness of their environment and the effective primary responses that established their judgement. Furthermore, the experiments using eye-tracking technologies are implemented for the focus groups.

Moreover, a new model is created by following the Adaptive Re-use Potential Model that Langston (2008:1712) has established.

All these theories are implemented in a case study of Ankara and Kaunas to investigate the effects of cultural memory and cultural identity on the process of adaptive re-use.

b) Methods

A review of selected literature is conducted to study the contributions of other researchers from different disciplines for pre-existing information. After that, the infrastructure of this research is established in three steps.

- The first step is the analysis performed on the language of the Modern Movement in Berlin and different dialects of Ankara and Kaunas and their interpretations.
- The second step consists of the experiments which are implemented on participants regarding their perception of the immovable cultural heritage of the Modern Movement for determining the indicators which have an impact on their appraisal. The experiments are applied by surveys and eye-tracking glasses.
- The third step is the establishment of a model for the perception of society of cultural heritage.

As Denzin and Lincoln (2003:105) state, the use of multiple methods and triangulation is crucial while obtaining an in-depth understanding of the phenomenon that is researched, and this strategy adds depth to the study. Therefore, this research employs various data-collection methods, such as 1) experiment (which contains questionnaire, interview and the usage of equipment), 2) preparation of inventory for the façades, 3) designing and testing the model. The results of the analysis are implemented on the strategies of adaptive re-use.

1) Experiments

The first experiment was designed to be applied by a questionnaire for testing participants on their awareness of their surroundings and, furthermore, investigating the factors and indicators which have an impact on their judgement. The participants were requested to provide their answers in the questionnaire in a Word document. However, some of the participants preferred to have a face-to-face interview, and in those cases, the interviewer met with the participants and performed the experiment

through personal interviews. The aim of this experiment was examining the perception of people of cultural heritage and the specific indicators and components they contemplate in their decisions, which could then be implemented in the design of the model.

The second experiment, which was applied in this research, involved the use of eye-tracking technology by following the methodology of Yarbus (1967) on eye movements during the perception of complex objects. The experiment sought to understand the indicators which affect the decision-making processes of people towards cultural heritage by recording eye movements. The use of eye tracking as a research tool intended to provide additional data for the research by recording the path that the eye was following while people were deciding if the building was cultural heritage or not. In that regard, the experiment helped to limit the area influencing the decision process.

2) Inventory

The investigation regarding the different languages used in the architectural discourse of the Modern Movement is an essential aspect of this research. Therefore, the inventory preparation was performed with the aim of analysing the patterns and approaches adopted on the building façades. However, the drawings on the preparation of the inventory were explicitly focused on the structures in Kaunas, Lithuania. One of the reasons for explicitly focusing on the buildings in Kaunas is related to the current status of Kaunas and its position as the European Capital of Culture 2022. As the city was chosen to be the European Capital of Culture, the documentation of the contemporary conditions of the historical buildings was determined to be crucial. Furthermore, Kaunas is currently in the tentative list of UNESCO, and the process of entering the main list was still ongoing during the preparation of the research. For this reason, documenting the present status of Modern Movement artefacts was found to be beneficial for the city. Moreover, it is possible to find previous drawings prepared for Modern Movement artefacts in Ankara, but not for Kaunas. In this regard, it was critical to focus on the historical buildings of Kaunas. However, even though Kaunas was not holding this status, it is important for the cities and their buildings to be well-documented for the next generations, and Kaunas is lacking this information. In most cases, the original blueprints of the buildings of Kaunas exist; however, they do not reflect the changes made in the process of construction.

In historic building research, the obtaining of original projects can be problematic, and in some cases, it is possible that the original project has been applied in practice differently. Because of this, the architects who work in the field of restoration and preservation of historical buildings commonly use the method of Bauforschung (in English: historic building archaeology), which is an interdisciplinary way of detecting and interpreting the traces in tangible proximity of the building by a detailed documentation related to the current condition of the building. The methodology of building archaeology research is structured around the analysis of the physical reality of the historic building with all of its practical and

theoretical aspects.[6] Therefore, the technique which was implemented in this research applied the drawing standards for the Bauforschung method. The inventory of each building contains detailed information about the construction dates, architects, usage of buildings, characteristics of doors, windows, roofs, materials, ornaments of the buildings and the current physical conditions. Furthermore, the analysis was prepared regarding the architectural style of the structure. The ornaments of the buildings were divided into three groups: symbolic ornaments, floral/natural ornaments and geometrical ornaments. However, these ornaments were as well analysed by the effects of the cultural memory of the region and the patterns, which were used in the tangible heritage of the vernacular architecture as well as symbols that were used in traditional elements. In order to be able to do this research, the selected buildings were measured and drawn in 1:100 scale. According to the results of the analysis, each building in the inventory was located in the scale of different approaches of the Modern Movement, such as regionalism, existence minimum, art deco and modernism.

3) Model

The Cultural Heritage Perception Potential (CHPP) model which was designed in this research aims to provide a reasonable method for calculating the conceivable perception of society towards cultural heritage. The CHPP model requires analysing the indicators which establish the impression for people to evaluate buildings as cultural heritage by contextual analysis. In that regard, the potential indicators were decided by the questionnaire, which was given to the participants who took part in the experiment, and eye-tracking technology.

It may be possible to conceive a different framework with the same aim. However, the one proposed in this research produces results that are considered reasonable and reflective of practice. The model works with a range of indicators within identifiable limits, which enable to establish a cultural heritage perception score for a building.

c) Presentations and Publications of the Dissertation

The results of the doctoral dissertation were presented in 8 Scientific Conferences (national/international) and published in 8 articles (national/international conference proceedings or peer- reviewed journals, one of them is in a Scopus Indexed journal).

The first chapter of the research was presented in 2 Scientific Conferences:

[6] Information about the Bauforschung method was taken from the following website: http://doktori.bme.hu/bme_palyazat/2011/tudomanyos_muhely/Torteneti_epuletkutato_muhely_en.htm [accessed: March, 2017].

1. First Baltic State Seminar for Doctoral Research, Riga Technical University-Latvia, 2017,
2. Annual Conference of Junior Researchers "K. Šešelgis' Readings-Lithuania, 2018",

and published in 1 Conference Proceedings:
1. Journal of Science-Future of Lithuania, Vol.10, 2018.

The second chapter of the research was presented in 3 Scientific Conferences:
1. Second Baltic State Seminar for Doctoral Research, Riga Technical University-Latvia, 2018,
2. Docomomo, International Conference on Conservation of 20th Century Heritage from Architecture to Landscape-Iran, 2019,
3. 7th International Scientific Conference "Modernism in Europe - Modernism in Gdynia"-Poland, 2019,

and published in 2 Conference Proceedings and 2 peer-reviewed journals:
1. Journal of Architecture and Life, Vol.3, Issue.1, pp. 113–127-Turkey, 2018,
2. Proceedings of Docomomo, International Conference on Conservation of 20th Century Heritage from Architecture to Landscape, pp. 368–377-Iran, 2019,
3. Proceedings of Modernism in Europe - Modernism in Gdynia Conference,-Poland, 2019,
4. Journal of Art History & Criticism, Vol.16, Issue. 1- Lithuania, 2020.

The third chapter of the research was presented in 3 Scientific Conferences;
1. Beyond All Limits, International Congress on Sustainability in Architecture, Planning, and Design-Turkey, 2018,
2. 4th Art & Science Conference on Empirical Methods in Art History and Visual Studies at the Department of Art History, University of Vienna-Austria, 2019,
3. Making and Shaping Things in Creative Economies-From History to Present Day, Kaunas Faculty of Vilnius University-Lithuania, 2019,

and published in 1 Conference Proceedings and 2 peer-reviewed journals (1 of the journal is a Scopus Indexed journal):
1. Proceedings of Beyond All Limits, International Congress on Sustainability in Architecture, Planning, and Design Congress, pp. 315–318-Turkey, 2018,
2. Journal of Cultural Heritage and Sustainable Development, Vol.9, Issue. 3, pp. 430–443, 2019,
3. Journal of Creativity Games, Issue 7, pp.16–21- Slovenia, 2019.

1. CULTURAL MEMORY AND ARCHITECTURE

1.1. Memory: Indispensable Link between Past and Present

According to Lefebvre (1991:32), the idea of cultural representation implies and explains the language, which can be useful for understanding the dynamic logic of architecture. For understanding the architecture and the impact of it on societies, especially the Modern Movement era, and the things it prompted but at the same time eliminated from the language of architecture, it is essential to discern the relationship between architecture and memory, and furthermore, analyse the construction of space and cultural memories. Cultural memories are mostly place-specific, and their remembering and reproduction are associated with the place where the events that formed those memories had occurred. As Ardakani and Oloonabadi (2011:986) state, even though the sense of place might be personal, it is the outcome of collective perception. The perception of people tends to be motivated by the way people deal with their physical environments in daily life, and places can significantly contribute to the creation and retention of memory. The more familiar the environment is, the more people will establish mental patterns for that environment, and consequently, people will feel more comfortable in that environment. In that regard, memory establishes an essential impact on the way people perceive their environment, and the built environment or architecture can be identified as a product of memories or cultural memories that societies have.

The meaning of memory would be described by most people as a way people remember and store past events. However, memory is not just a way of remembering or storing, but it is a way of keeping things alive as well. Furthermore, memories establish a reference point for people in time. According to Gross (2000:25), the importance of memory is related to its ability to recall knowledge and experience, and the impact of collections it establishes on people's behaviours and characters. Therefore, the concept of memory and remembering is an intriguing subject due to its characteristics which help people to construe and understand themselves and the world around them. As Misztal (2003:31) states, because memory functions in every act of perception, in every act of intellection and in every act of language, it is an essential quality of cognition and reflexive judgement of people. Thus, memory and remembering assist people in comprehending their environment. However, memory has another important and interesting property, which is the region it is stored in human brain. According to Jefferey and Hayman (2004:309), the hippocampus in people's brain, which is the area that memories are kept in, is the same area which helps people with forming cognitive maps of the environment. In that regard, memory and remembering are not merely assisting people in the recognition of environment that people inhabit, but they have a physical connection in people's brain as well. As a result, it is possible to state that the place, environment and even architecture have a distinguished relationship with memory.

Even centuries ago, in Ancient Greece, the philosophers of the time had many discussions about what memory is, what kind of elements can improve memory and

what techniques and principles can be used for organising memory impressions. As a result, they constituted a theory which demonstrates the significance of the relationship between memory and place. The theory that was established is called 'Ars Memoriae', in English 'The Art of Memory' (Yates, 1966). With the help of the mnemotechnics technique of Ars Memoriae, the philosophers aimed to memorise facts and objects through images and places in memory, and they argued that no one could ever learn or understand anything without having some mental pictures in mind. The mnemotechnics involved locating each element to be remembered in an abstract place in memory that it could be quickly recovered by imaginarily walking through a set of places, and even touring places in brain would help people to remember better. The orators adopted this technique to reproduce their texts and ideas by connecting them with the image of a place, and furthermore, they used different art forms and objects, such as paintings, sculptures and buildings, for connecting metaphorical images within imagined surroundings. Thus, when they wander through the objects in their minds as if they were statues in a palace, gallery or theatre, their remembering improves. Therefore, it can be stated that visual images strongly modulate the process of memory and remembering, especially when memories are attached to them.

Even when people are not actively trying to memorise an event or an object, they are still likely to attach their memories to the images, and therefore, when they want to remember, looking at the images would bring their memories back. For that reason, people tend to take many photographs of the places they go to, merely to be able to remember their memories of the time they have spent there more easily and in greater detail. As Sturken (1997:11) states in her book *Tangled Memories*, a photograph provides evidence of continuity and proves that an event took place or a person existed. However, when people talk about the images, which help them to remember, it can refer to mental images and memories they have attached to those images and do not necessarily mean photographs, which they have taken or paintings or sculptures. Memories can be triggered by various stimuli, and visual records are one of them.

Creating Memories

In order to remember events, facts or processes, people need to commit them to their memory with different inputs. The process of creating a memory involves different steps, such as encoding, storing, retaining and subsequently recalling information. A memory begins in short-term storage, and once this process is finished, it goes into long-term memory. As Brady et al. (2008:325) state, when things go into long-term memory, the amount of perceptual detail that is stored decreases. When people look at the image, first, they store it in their short-term memory, and they will be able to remember it in detail only for a while, and days later, they might only be able to report the gist of what they had seen. For people to feel their connection with the past events or objects and remember them more strongly, they need to remember with other senses as well, such as smell, taste or physical contact they had with the object that they could remember actively and establish a mental code for the memory.

In that regard, architecture can be remarkably effective for establishing mental codes for people, since it constitutes the physical environment, which can as well contain stimuli for various senses.

According to Sternberg (2003:316), the mental codes are used for organizing incoming information and inputs for storing memories, and both visual and verbal codes can be used when recalling information. However, images tend to play a more effective role for people in the process of remembering. As it was stated in Paivio's theory of dual coding, visual and verbal perception act as two distinct systems, and visual stimuli can be recalled and remembered easier than verbal codes. According to Paivio (1978:380), there are two cognitive subsystems, such as imagens and logogens, which are independent but at the same time interconnected symbolic systems that people use for encoding. Logogens are organised in terms of associations or hierarchies, and they are verbal inputs, while imagens are organised in terms of part/whole relationship or perceptual information, and they are visual inputs. The theory is based on the picture superiority effect, and Paivio claims that visual information has advantages over words while coding and storing (Defetyer et al., 2009:265). As he explains, visual stimuli tend to be encoded dually, since it is easier to generate a verbal code for an image and not as easy or likely to create image labels for a verbal code. He performed various experiments for understanding the way people store their memories and the way associative recognition memory works. In one of his experiments, he demonstrated various pairs of items to participants such as word-word, word-picture, and picture-picture, for achieving systematic information regarding the perceptual and verbal codes. The participants were required to determine whether a given stimulus was the same as another, and Paivio measured the correlation between the reaction time and codes (Paivio, 1978:386). The results of his experiments suggested that people reacted faster to remember images in comparison to the words. Moreover, people remembered much better if they had associated the words with an image, and they succeeded to provide more information about the features they needed to remember. As Hockley (2008:1351) states, the memorial representation of pictures is in some ways more elaborate, distinctive or meaningful than the representation of words. Therefore, it might be possible to state that images give more analogical information to people, rather than symbolic ones that they could be recalled and remembered easier.

Both images and words contain associations with their origin, places and surrounding items. These associations can affect emotions in people, and furthermore, the emotional content of images can affect memory results. Memory is powerless without the sensation and attachment to the present, and images can manage to establish this connection. As Mather and Nesmith (2007:449) state, recall and recognition are more likely to be emotional than neutral, especially for images. Furthermore, according to Saidi (2019:31), people’s instantaneous interaction with and reaction to their environment is through their body with various sensorimotor capacities as well as their memorized experiences, which are shaped by their prior perception of the world in different biological, psychological and cultural contexts. In that regard, architecture and specifically cultural heritage can provide people with the

inputs they might need for remembering, since they help them to associate memories and past events with their lives of today by the effect of being visual records. Architecture and old buildings can be used as images but at the same time as physical structures that trigger other senses. As Pallasmaa (2005:44) states, architectural work is not merely experienced as a set of isolated visual images, but in its fully embodied material and spiritual presence. In that regard, architecture can have a significant impact on remembering. With the images people create and the sensations that they obtain through architecture, people can construct a relationship between space and time. Moreover, the continued existence of space, especially in the environments that contain cultural heritage, can allow recreation and reinterpretation of memories over time, which establishes a substantial attachment. However, it is possible to state that the continued existence of space was damaged when the language of the Modern Movement started to be seen as the architectural sphere.

With the substantial attachment that people establish, they keep their connection with the past, which shapes the culture of the society they live in today. As Erll (2008:4) states, according to Posner and his anthropological and semiotic theories, culture can be seen as a three-dimensional framework, comprising social, material and mental aspects. Even though the starting point of memory and remembering tends to happen within a person, it is possible to state that it is not merely an individual act. Memory works collectively as well, and when an individual's memory starts to interact with other people's memories, it creates cultural memory. As Debord (2008:23) states, the environment affects the emotions and the behaviours of individuals in an organised or unorganised way. The research on this subject is called psychogeography, and it argues that sites can tell stories about the past for people. However, the question is it possible to learn stories from 20thcentury's built environment as well. There might be sites that cannot tell the story of memories directly, and these sites might need an interpreter to demonstrate the cultural memories. According to Kluitenberg (1999:4), the architecture of the buildings and the artefacts, which create the living space, testify the persistence of culture and society's memories. Therefore, cultural memory is a collective concept for all knowledge that directs behaviour and experience within the framework of society. The way people establish their cultural memories is firmly connected with the place that people inhabit with the vernacular architecture that they have, and furthermore, with the perspective and the remembrance of the society that they are part of. Thus, a built environment without the essence of vernacular architecture or cultural representations might not be convenient for establishing cultural memories.

While places and society help people to remember their memories, memories can help people to feel connected to a place and establish a place attachment as well. People do not regard a space as a place if they do not have memories related or attached to that specific place. The development of emotional connections with places is an essential requirement for people, which helps them to establish their identities and gives them a sense of stability they require for their well-being. Moreover, as Zinsmeister (2015:11) states, culturally shaped perception models change people's understanding of space, and furthermore, their relationship to the space and their use

of space. Therefore, memories and especially cultural memory establish the continuity for societies, and they both contribute to the sense of place for people.

Cultural Memory

The first stage of cultural memory is the living memory. Living memories tend not to be individualistic, and most of the time, they are inherently formed by collective memories as well as collective contexts. Therefore, they create the feeling of being a society for people. The definition of collective memory can be construed as a series of events that are remembered by a group of people who share those events and involve themselves in shaping memories. When there are more people that remember the same event, it is likely that the memory itself will identify standard features. Therefore, cultural memory is a social memory of collectivities, such as individual memories that are collectively shared, transmitted by cultural artefacts, and in this form, it assists people to construct and define or redefine their relationship to the past, present, and frequently, future.

Regarding its connection with all the different eras in time, cultural memory studies is an interdisciplinary research area, which comprises diverse methodologies and perspectives. This characteristic of memory establishes the terminological abundance which accompanies the disjointedness. As Rodriguez (2007:217) explains, *cultural memories are those transformative historical experiences that define a culture, even as time passes, it adapts to the new influences. For oppressed people, cultural memory engenders the spirit of resistance; not surprisingly, some of its most potent incarnations are rooted in religion*. However, the distinctive character that a person obtains from belonging to a specific society and culture is not maintained for generations via some hereditary mechanism, but is rather as a result of socialisation. As Assmann (1988:10) states, *the 'survival on the type' in the sense of a cultural pseudo-species is a function of the cultural memory. According to Nietzsche, while in the world of animals, genetic programs guarantee the survival of the species, humans must find a means by which to maintain their problems.* People can achieve finding the means for maintaining their problems by the experience they have in their interactive relationship within the society they belong to and by repeated societal practice and initiations. As it is explained by Boothby et al. (2014:2209), shared experiences are amplified, even there is no active communication between the people. Therefore, societies which share the same past or experience the same happy or sad periods in their lifetime are more likely to adhere to the feeling of contribution, and furthermore, with the strong feelings of emotional bonds.

Cultural memories may contain events that happened not only during people's lifetimes but memories that took place before they were born as well. According to the recent researches, especially memories which caused negative emotions in people or environmental effects can be passed towards the posterity (Klosin et al., 2017:323; Houri-Ze'evi et al., 2016:88). Therefore, what people remember depends on their personal experiences as well as their transgenerational inheritance and their oral traditions, cultural transmissions, which establish the intangible heritages for

societies. Furthermore, it can as well depend on their motivation to discover the past. Lewicka (2008:211) states that there can be a specific connection between the course of autobiographical and collective memories, because in both cases, what is remembered are the events that evoked strong emotional reactions and feelings for the party concerned, which required adaptation, or happened during the period of identity formation. Therefore, even if people have not experienced something by themselves or even if they have not inherited those memories from their families or their ethnic group, people can still connect with the memories of other people by interacting with them or by living in the same environment which would influence their remembering as well by the effect of cultural memory.

However, remembering, which is constructed and at the same time constrained by both cultural and social forms, is still an individual mental process, and intersubjective explanation of how people remember as well acknowledges that, despite the fact that memory is socially organised and mediated, individual memory is never entirely conventionalised and standardised. According to Misztal (2003:11), the memories of people who have experienced the same event are never identical, because in each of them, a concrete memory evokes different associations and feelings. Associations and feelings are essential, since they affect the way people are inspecting, understanding and responding to events. As Erll (2008:7) states, some of historical events or historical places might trigger different sensations in different people as well. A church might remind a couple of the best day of their lives, as they got married in that church, while for another couple, it might remind them of the worst day in their lives, because they attended the funeral ceremony of their child in that exact same church. Alternatively, some people would prefer to keep traces of unfortunate events that have happened so that they would not forget, while some people might favour the approach of having closure and not remembering things. Therefore, history and memory can be interpretive, and they have a close connection with the peoples' perception. No matter how a person looks at a situation, each person's perspective will indeed be unique and subjective regarding their own point of view. However, it can still be possible to find patterns and indicators while analysing the perception.

Memories can be triggered by external stimuli as well. People might not remember some facts or events unless somebody else mentions them, or people might not be able to remember a poem unless someone else tells a part of the poem and helps them remember the rest. As a result, even though people frequently think that they do not remember some parts of the past, by seeing things, smelling things and communicating with other people, the memories can come back to the conscious. Therefore, memories can be defined as partially individual, but at the same time partially common to all representatives of the specific culture.

Furthermore, according to neuroscientists, situations, which never happened, can be implanted in peoples' brain as memories by asking the right questions (Loftus et al., 1995:722; Wade et al., 2002:600). Especially if someone has a gap in his/her mind while trying to remember something, it is even easier. In a situation like that, people would need facts for remembering. In that regard, remembering things by

communication is the way to create a collective memory, and the collective memory will stay alive as long as people would stay in touch with that community. However, people would need to have physical pieces of evidence for keeping their memories stronger. That is the point where cultural heritage and architecture become essential. Architecture determines cultural representations, which establish vernacular architecture and vernacular patterns that are related to familiar environmental images that people have.

Even though the vernacular architecture has an essential connection with the availability of materials, it is as well intimately connected to the perception of people who are living in that area and related to their needs. As a result, memory, particularly cultural memory, establishes an impact on architecture. Furthermore, the effect might not only be on the vernacular architecture, but on the way architectural styles and expressions are shaped in various parts of the world in different nations. Nations develop and improve individual forms of architecture, according to their ability and their cultural memories that they have inherited from earlier generations. Even though there are similarities in the expression of the same architectural movements, there are differences as well due to the traditions related to the vernacular architecture and the perception of the ideal beauty. Therefore, the expression of the same architectural style can differ due to the language architects have adopted, which is related to their national patterns, and furthermore, due to the conditions of the environment.

The properties, which distinguish architectural styles from each other, are related to their characteristics, which as well make them historically identifiable. They might include different forms, materials, building techniques and different regional characteristics. As Hamlin (1896:3) explained a century ago, architectural style is a particular phase, or the characteristic manner of a design, which prevails at a given time and place. In that regard, it is possible to state that one of the most critical descriptors of architectural styles is the place. Styles tend to spread to other places, and when they spread, it is likely that they would acquire a new variation at that new place, or that they would have their style or dialect related to that specific place.

Nevertheless, there are universal architectural styles, which contain characteristics that do not have essential differences between different places. The Modern Movement is one of those universal styles; however, as this study suggests, most of the time, this property has a negative impact in the aspect of preservation, and it tends not to be valued as cultural heritage, primarily by society because of its ubiquitous character. As a result, people cannot readily associate themselves with these buildings in different places. It is likely that people would prefer cultural heritage of earlier eras rather than the 20th century's unornamented and explicit constructions, for the reason of not being able to connect, as they do connect with the constructions, which have the evident traces of culture. Even when architects produce in universal architectural styles, this research argues that it is expected that they would apply some elements which are related to culture. This does not mean that they have to use traditional ornaments, symbols or signs, which are directly related to the values of society, however, it somehow needs to reflect the way people live in that environment if it is to be regarded as functional, because if it does not reflect people's

needs, the building will not be functional for the people who live in that area. Therefore, even in universal styles, it should be possible to trace the patterns, which are outcomes of culture, and furthermore, the impacts of memory of the specific society and place.

In that regard, the architectural discourse of the 20th century is exceptional. The idea and the roots of the Modern Movement have been profoundly influenced by universality, functionality and rationality, which were born during the industrial revolution. Therefore, the Modern Movement aimed to establish a set of universal principles guided by rational and scientific thinking, which can be adopted all over the world. However, in the establishment of universally accepted principles, the modernist approach stood against the context that referred to the past and tradition. As a result, the Modern Movement has often been accused of failing to re-define the culturally inherited patterns under the unchangeable principles of rational thinking. However, as the built environment started to become standardised and homogeneous due to the rational and scientific principles applied in architecture, it is possible to state that the idea of universalism was hard to adopt as the ideal principle, especially in societies with a strong tangible and intangible cultural heritage and strong vernacular architecture and architectural traditions.

1.2. The Nexus

Memory and Place

According to Eco (1986:89), remembering contains different stages. The first stage is building the memories, and the second stage is travelling again through that space. When the memory is analysed, it is not that different from a city or a built environment, since it undergoes the same process. Furthermore, the built environment itself strongly reflects the memories of people who used to live in that area. The architecture of cities is the sum of cultural memories that people went through, and they are the results of the past and the past experiences of the people. Therefore, it is not just the monuments, which are the manifestations of memories, but even the houses of the people carry the continuity of memories. As Halbwachs (1987:141) states, having daily contact with historical districts and houses establishes a different universe for people, which contains all the different memories tied to these images. Therefore, places help people to remember, and at the same time, help people to feel connected.

Memories can help people in remembering a location or a place; however, when people remember a place, it is not necessarily the place they remember, but it can involve the memories they had in that specific place. As Quintilian states in his work Institutio Oratoria, "When we return to a place after a considerable absence, we do not merely recognise the place itself but remember things that we did there and recall the persons whom we met and even the unuttered thoughts which passed through our minds when we were there before" (Den Boer, 2008:20). Therefore, there is a particular connection between memory and place; furthermore, memories help people to remember and identify. Hence, it is not just purely remembering the place, but it is the combination of the place and the memories which makes the space meaningful. In that regard, the perception of a place has a close connection with the place in the present time. However, most of the time, the perception of the place can be related to the sum of memory and images which generate the interpretation and the representation of the past. Thus, people can recollect events, dates and even names by associating them with a place, and both place and architecture have an essential influence on memory and remembering (**Chart 2.**).

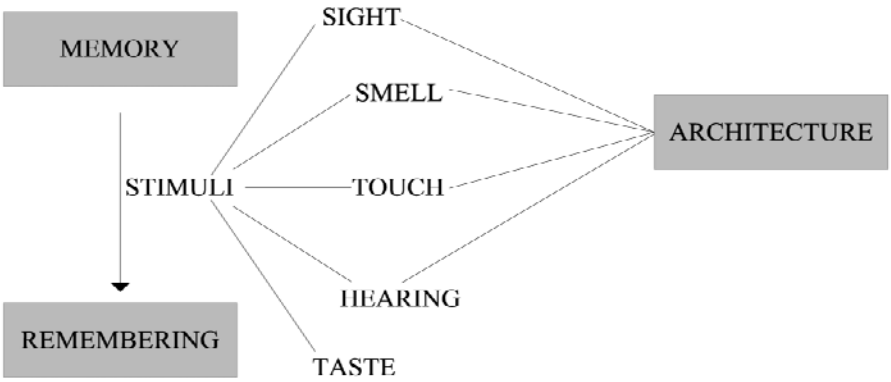


Chart 2. The connection between memory and architecture

Already in the 19th century, Ruskin (1849:169) pointed out the importance of architecture and the place on memory in his book called *The Seven Lamps of Architecture*. In the chapter of 'The Lamp of Memory', he states: "It is as the centralisation and protectress of this sacred influence, that architecture is to be regarded by us with the most serious thought. We may live without her, and worship without her, but we cannot remember without her. How cold is all history, how lifeless all imagery, compared to that which the living nation writes, and the uncorrupted marble bears! — How many pages of doubtful record might we not often spare, for a few stones left one upon another! The ambition of the old Babel builders was well directed for this world: there are but two strong conquerors of the forgetfulness of men, Poetry and Architecture". Ruskin as well states that thinking and feeling are essential for remembering, and if the thing people are trying to remember is held or

seen on a daily basis, it would be remembered much stronger. In this regard, it is possible to state that a city and its buildings are the loci of collective memory, and this relationship between the locus and the community can become the city's predominant image for the people. Therefore, all architecture, landscape and specific artefacts can become a part of the memory of the city, and furthermore, they can help to establish new memories.

Subsequently, more than a hundred years ago, Rossi points out the interaction between the architecture and memory. As Rossi (1982:130) states, "Memory becomes the guiding thread of the entire complex urban structure, and in this respect, the architecture of urban artefacts is distinguished from art, in as much as the latter is an element that exists for itself alone, while the most significant monuments of architecture are of necessity linked intimately to the city." He asserts that monuments are a reminder of the past that people are still experiencing, and with time, the city grows upon itself; it acquires consciousness and memory. Therefore, architecture is not the narrator of the past by itself, but it has the ability to stimulate one's memory and bind the memories.

For binding memories, people build monuments such as columns, plaques, obelisks and other architectural objects, which can collaborate to remember events. People as well used architecture for remembering mathematical and astronomical principles when they constructed Stonehenge and the pyramids of Egypt. Therefore, with the monuments people built, they tried to keep their close contacts with their pasts and establish stronger bonds with the place they lived in. However, it is not just monuments which fixate people's memories. The dwellings and houses people construct for their daily life are as well a sum of their own cultural memories, and they create the tradition that establishes the vernacular architecture of a region. As Rapoport (1969:2) states, the folk tradition is "…the direct and unselfconscious translation into the physical form of a culture, which reflects the needs and values as well as the desires, dreams, and passions of a people, and that is much more closely related to the culture of the majority and life as it is lived". In that regard, vernacular architecture is eminently crucial because it as well represents the collaboration between the people of generations and how they dealt with the nature and how they found their suitable way of living in those specific conditions of the region. Furthermore, the organisation and the form of a house is influenced by the culture it was designed for that the cultural values and habits could be expressed and carried by the architecture. As Pinotti (2003:1) states, the transmission of cultural values, in general, can be a very abstract issue if one does not refer to specific objects, which act as carriers or vehicles or supports of the transmission itself. In this regard, architecture, by means of vernacular or monumental and by means of cultural heritage, can play the role of the carrier. The patterns that the architecture carries in itself can work as a reflection of cultural values, traditions and memories of the environment.

The environment and the cities carry their own memories, and walking through cities helps people to remember. Furthermore, it is not just the cities: rural environments have this effect on people, which results in people establishing place attachment. The landmarks in the environment create bonds with people, and those

bonds allow people to develop more interest and, at the same time, more emotional connection with it. As Hristova (2006:26) points out, a city remembers through its buildings; thus, the preservation of the old urban fabric is analogous to the preservation of memories in the human mind. Therefore, a city is a collective memory of its people, and it is a way of remembering, which is associated with objects and places. Associations that people obtain through architecture assist in establishing potential stimuli for people to remember on a daily basis, which is one of crucial impacts of architecture on people.

However, a memory that is provided by architecture does not merely work in the present, but it has a relationship with the past as well. Buildings and towns express people's values and aspirations. Furthermore, they provide one of the primary means by which people visualise themselves and their society in history. History is essential in all aspects of life, because without remembering the past, societies cannot advance.

All original thoughts are at some level dependent upon something that has happened in the past or before them. Therefore, past decisions and events inherently influence the present condition of any era and the area. According to Marot (2003:31), Freud suggests that a city can be analysed like an organism whose previous states of existence are accessible to different degrees by various factors. The sense of memory that the city establishes in itself does not require the construction of a museum or a memorial. Every city and building site can be thought of or identified as a palimpsest, which carries the traces of the past. The definition of palimpsest is a manuscript page, either from a scroll or from a book, from which the text has been scraped or washed off that the page can be reused for another document.[7] When the historic cities around the world are analysed, it is frequently easy to notice the different layers that the cities contain. Therefore, it might not be an incorrect approach to view all the cities and buildings as palimpsests as well. Buildings can be read as a part of the cultural fabric of a community, and they can carry traces of past stories. Architecture can transform ideas, needs and desires into spaces, and it can capture memories from the present or from the past in tangible and buildable forms. Therefore, memory creates a unique relationship with space by holding on to the essence of it, and as a result, architecture represents the history, tradition and culture of a specific community and memory. None of these characteristics are represented by the Modern Movement. However, the architecture of the 20th century still adds a layer to the cities. It is possible to state that it is not an easy layer to establish associations with, and it tends not to affect the cultural fabric directly. As Peters (2006:6) states, a site that has or had a rich cultural history has the potential to be amplified through architectural intervention. Therefore, architecture has the ability to carry memories and culture from generation to generation. But this ability of architecture was not promoted by the language of the Modern Movement.

---

[7] https://www.merriam-webster.com/dictionary/palimpsest [accessed: March, 2017] from the website of Merriam-Webster dictionary.

However, it is not merely the memories that architecture carries. Architecture carries identity as well. According to Norberg-Schulz (1980:22), the relation of people to a city or a place is not only related to the ability of them to orientate as Lynch (1960:10) suggests, but it is the sum of identification and orientation together. As he states, people's identity presumes the identity of the place, which helps people to distinguish each place from any other. Therefore, architecture itself carries identity, and at the same time, it helps people to find the reflection of their own identities as well. However, identity is not a straightforward subject, and it involves various historical layers either related to time or place. Furthermore, the connection between identity and architecture is an essential issue, which has been discussed by scholars and architects for many years.

Identity and Place

Identity refers to the ways in which individuals and collectivities are distinguished in their social relations with other individuals and collectivities (Jenkins, 1996:4). Therefore, identity is the characteristic which makes every individual different from other individuals. Thus, a person's identity is the way that the person expresses himself/herself towards the others, which construes him/her in the past, present, and future, which establishes continuity. People tend to reflect their identity in the places they live; moreover, they personalise the places they inhabit for the feeling of continuity as well as for the sense of familiarity. These two feelings are essential for the comfort that people need for their well-being.

However, contemporary norms, values and worldviews established a new understanding of identity and society, which keeps evolving and changing. Especially in contemporary understanding, as Borden (2006:98) states, people no longer have a single identity which lasts relatively unchanged throughout their lives, but instead they have or can have the opportunity to have multiple identities which shift and mutate according to people's age, body, city of residence, cultural tastes and general attitude. Those multiple identities can be people's individual identities, familial identities, territorial identities, class identities, religious identities, national identities, race identities, ethnical and gender identities. Identities that are biologically inherited, such as race or ethnical, are impossible to change. However, the other forms of identities can be changed, evolved and modified by the social interaction with other people, and as a consequence, people generate societies. As Briggs (2000:241) states, "a society is a group of people involved in persistent social interaction, or a large social grouping sharing the same geographical or social territory, typically subject to the same political authority and dominant cultural expectations. Societies are characterised by patterns of relationships between individuals who share a distinctive culture and institutions". Therefore, societies are developed by the interaction of people who are living and sharing the same geographic area. That interaction becomes stronger when societies additionally have a collective memory of their own, and furthermore, when they feel the same way towards their cultural heritage and when they have a shared past.

According to Giddings (2004:26), “Society is a collection of individuals united by certain relations or modes of behaviour which mark them off from others who do not enter these relations and who differ from them in behaviour”. As a consequence of all the interaction and relations that people have, they shape their identities in society. However, Giddings states that society involves both likeness and difference, which are logical opposites, but at the same time, the comprehension of the relationship between them is necessary. As a dominant share in the constitution of society, having the same standards, same interests in everything, accepting the same customs, representing the same opinions without questioning and without variety, might cause societies and civilisations not to become advanced. Moreover, culture might remain primitive. Thus, society needs a variation in itself for its existence and continuance which would help to evolve it.

Due to the current developments, with wars, which caused economic and political instability, the improvements in communication and transportation, a remarkable number of people left their countries and moved to other places to build their futures, which established societies with ample differences. The figures of the United Nations Population Fund from 2015 demonstrate that 244 million people, or 3.3 per cent of the world's population, inhabited a country other than the one of their origin and were separated from their social opportunities. [8] As Smith (1992:59) states, in the modern era of industrial capitalism and bureaucracy, the number and, in particular, the scale of possible cultural identities have increased in society, and human beings retained a multiplicity of allegiances in the contemporary world. Therefore, the idea of community and society has been changing during the last century, especially regarding cultural identity. Nowadays, communities are not predominantly created by people who are sharing the same background and the same memories, but more by people who are sharing the same geography with a shared interest. Hence, today's communities create a global identity rather than a national one. The growth of globalisation all around the world with the new ways of communication, education and social media changed the national boundaries and thus brought people a cosmopolitan character, which evokes internationalism, and as a result, people establish multiple identities, which affect their cultural identities as well.

Cultural identity is a sense of belonging to a specific group based on various cultural categories, and it is constructed as well as maintained through the process of sharing collective knowledge. As Hall (1990:225) states, cultural identities derive from somewhere, and they have histories; however, like everything which is historical, they change and transform, and they are subject to the continuous play of history. This characteristic of the process of changing was accelerated by the globalisation of the world. As Tomlinson (1999:269) points out in his research about

[8] http://www.unfpa.org/migration [accessed: July, 2019] from the website of the United Nations Population Fund.

globalisation and cultural identity, there are views about globalisation, which argue that it is a seamless extension of, indeed, a euphemism for, western cultural imperialism, and it is destroying cultural identity. However, there are other scholars that disagree, such as Adler (2002:362), who states that globalisation is a positive concept, and it is creating a new form of human who is multicultural. The changes and developments around the world have an impact on cultural identity, and these changes shape a different form of society. However, the development of an identity which is related to the culture is an ongoing process in its own nature. It is possible to state that both identity and culture do not eternally stay the way they are, and they keep evolving. Therefore, they can assist society in becoming richer.

The changes and the process of evolving in society do not merely affect the cultural identity, but they as well establish a reflection in architecture. Especially after the industrialisation, which caused a huge amount of development in technology and engineering, and particularly in the usage of building materials, such as steel, iron and plate glass, an architectural style was formed which is functional and is called the Modern Movement. The term for this style is applied to different types of expressions which began to be seen in Europe in the first half of the 20th century, and it additionally spread towards the United States of America. It rose to global prominence between the First and Second World Wars in every visual medium: from fine arts to graphics and illustration, fashion and textiles, furniture, film, photography as well as architecture.

The main idea of the 20th century's architectural discourse was about all the changes that were happening in the then-contemporary world, and it tried to find a way of establishing an architecture which is global and universal; furthermore, it was aiming to give the same understanding of interpretation and perception to different people who were living in the same environment. However, in his book called *Habitus*, Bourdieu (2002:22) discusses how people interpret and respond to their environment in society, and he states that people perceive their environments by their knowledge, familiarised ideas and regular personal experiences within the socio-cultural context of their surroundings. He explains that the knowledge, which people hold, and the practices they maintain are shaped by their own past encounters and everyday experiences of being within the socio-cultural conditions of the environment. The ideas he presents as well apply to the context of architecture, because the specific meanings that people interpret from the built environment or the way they construct the built environment are as well shaped and limited by what they know from their own background of experiences and past encounters. Moreover, from their familiarity with the accepted ideas, they establish the architectural identity to the environment. Therefore, every building in the environment can be seen as a historical document or the reflection of values of the society it has been produced in a specific location.

Architecture and Place

As Mehrpoya (2015:69) exemplified in his essay called "A comparison of identity in vernacular and contemporary houses", if an architect who lives in a foreign country comes back to his/her original lands and constructs a glass building, which is the same as one in the country which he/she visited, the only work he/she will have done would be transferring the architecture that he/she has seen. However, if the same architect learns the architectural principles and applies them to a very different set of materials, climactic situations, customs and traditions, it is probable that he/she will construct a building which is not entirely made of glass, but which is proportionate to the status and the identity of that particular place. Therefore, the building he/she will have built would be familiar to the society. Furthermore, it will not contrast with the vernacular architecture that has been used in that specific area, and it would not be in disagreement with the architectural identity.

Oliver (1998:22) describes vernacular architecture as the architecture which consists of buildings suited to the environmental conditions that depend on available resources. According to him, vernacular architecture tries to respond to the community's basic requirements, values and economic situation by paying attention to people's way of life and the culture of the community. Therefore, vernacular architecture is the reflection of the identity of a community. Furthermore, architectural identity and vernacular architecture can represent a living landscape with a shared sense of place which is produced by the community's accumulated attempts over time at containing meaning and way of life they form. Moreover, as Bonta (1979:14) points out, the physical reality of architecture consists of the fabric of buildings and people that live in them. Therefore, architecture is closely related to the society it was born in, the identity of that society and the location it is constructed. However, most of the time, none of these relations can be detected in the 20th century architecture. The meaning of identity is mostly being reconciled by the national identity, especially in post-war architectural practice (Colquhoun, 1997:17). Substantial claims of nationality have often accompanied the urge to restore and preserve the lost identity through architecture. Vernacular architecture is the accumulation of a close correlation between the forms and the culture in which they are embedded, but it is as well intimately connected with the landscape they have been constructed in. Therefore, local identity does not necessarily reveal a specific nation's identity. As a result, it is possible to state that the architecture, which has been implemented in a region without incorporating the culture and the forms of the area, is likely to vanish after a period of time.

In the history of architecture, it might be easy to recognise that most of the architectural movements were dictated or influenced by the elite groups of the societies. Many social and political ideological movements have functioned as the primary sources to establish elite groups and achieve ideological goals; for that purpose, architectural identities been reshaped (Nooraddin, 2012:82). However, modern architectural movements established new elite groups of architects, where each group tried to create an architectural identity from their movement's style and principles. The increase in the number of people who received architectural education

during the 19th century contributed to the global applications of the movements. As a result, the architectural identity shifted its meaning from being a reflection of the local forms towards being the reflection of the movements. During this period, architects started to use lines, colours, materials, shapes, forms and masses as elements with the purpose of designing buildings according to the new architectural movements. Furthermore, architects as well challenged structures with experimental engineering techniques. However, the most challenging problem was to find a way of applying this recently born architectural style while at the same time considering the local identity.

The solution for that problem can be found in an architecture which contains both/and, rather than neither/nor. As Venturi (1966:25) states in his book *Complexity and Contradiction in Architecture*, even though architects try to ignore or abolish ornaments or cultural elements on the surfaces, these elements would persist to stay, since they are how people reflect their identities and cultures. Architecture needs to communicate with people that people could understand, interpret and appreciate. Implementing an architectural style, which only includes universal values and principles, might not be easy for a society to interpret and accept. However, traces of cultural memory and traditions can quickly make an architecture valid for different societies. This approach, which was defined in the post-modern architectural theory, can as well be seen in the Modern Movement on different levels. Furthermore, this approach can affect the perception of the cultural heritage of the Modern Movement. The Modern Movement, in its origin, has a paucity of memory. Therefore, it causes a problematic situation in identifying or evaluating the cultural heritage of this period, especially in the perception of society in the contemporary period. However, if only it was be possible to trace the impact of memory in different dialects of the Modern Movement, it would accomplish a more manageable process of evaluating the constructions. Furthermore, if one of the aims of the Modern Movement is being functional for the users, it should have traces of identity, and it should have the approach of both/and as well.

1.3. Reflection of Memory in Architecture and Memento Value in Cultural Heritage

According to Lynch (1960:5) *"*The sweet sense of home is strongest when home is not only familiar but distinctive as well". In that regard, the reflection of memory in architecture embodies both of these feelings for people, since it makes the environment and the structures familiar to people, but at the same time, it generates recognisability. However, the reflection of memory in architecture can be detected the most in the process of perception of cultural heritage. According to UNESCO's Draft Medium-Term Plan 1990–1995, "The cultural heritage may be defined as the entire corpus of material signs - either artistic or symbolic - handed on by the past to each culture and, therefore, to the whole of humankind. As a constituent part of the affirmation and enrichment of cultura1 identities, as a legacy belonging to all humankind, the cultural heritage gives each particular place its recognizable features and is the storehouse of human experience". Cultural heritage can be tangible, such

as buildings, monuments, works of art, landscapes; it can be intangible, such as folklore of a nation, traditions of a society or a language; furthermore, it can be natural. Some of the cultural heritage can be national; however, some of it can be universal and valued by the whole of humanity. Therefore, it is essential to identify and evaluate it correctly based on the impact of it on societies.

Furthermore, the Council of Europe as well emphasized the importance of social aspects of cultural heritage in the convention they prepared in 2005 by describing the meaning of cultural heritage as "a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time"[9]. Therefore, one of the essential characteristics of cultural heritage, either tangible or intangible, can be stated as the reflection and interaction of these objects or artefacts on the environment and society.

However, cultural heritage might be defined in different ways by different individuals and different societies as well. As Howard (2010:1) states, the most straightforward definition of heritage is what people have: the ambition to preserve for the future, which puts the emphasis on people and actions taken in the present. Furthermore, Graham (2005:7) asserts that heritage is the selective use of the past for contemporary purposes. Consequently, even though most people would consider that heritage merely refers to the past and valuable things related to the past, it has another significant dimension stated by scholars, which is the impact on present lives.[10]

The sensation that the cultural heritage gives to people is mostly decided at the moment of perception. As Haldrup (2015:52) points out, heritage has traditionally been bound with the conservation of imagined past, hence, potentially excluding marginalised experiences and interests from the past it represents. This approach brings to mind the question whether cultural heritage is indeed viewed as symbols, furthermore, whether the concept of heritage is meaningful only as long as people ascribe a meaning to it. In the book called *Uses of Heritage*, Smith (2006:20) states that there is no such thing as 'heritage', and heritage has to be experienced for it to be heritage. Furthermore, in the same book, Smith introduces the concept of the Authorised Heritage Discourse (AHD), which suggests that there is a widespread belief that heritage can only be adequately interpreted by elites and experts. Even though the statements of Smith might seem strong, both of her statements are pretty

---

[9] Council of Europe Framework Convention on Value of Cultural Heritage for Society. Council of Europe Treaty Series, no. 199, 2005.

[10] This section contains information from the article of the author with the details below:
Doğan, H.A. (2018). Impact of memento value on the perception of cultural heritage: Case study of the modern movement and the dialect of Kaunas, *Journal of Science-Future of Lithuania*, 10.

appropriate, and it is true that heritage only stays alive as long as it is performed and practised. Furthermore, there is another belief or perception of cultural heritage, which suggests that the cultural value of the heritage is tied to time depth, monumentality, expert knowledge and aesthetics. This is a strong characterisation; however, this perception as well emphasises that heritage is only meaningful when it establishes the transmission between the past and the present. Therefore, one of the leading characteristics of heritage is that it is a carrier rather than a solid concept, and it only endures when it is used on a daily basis and perceived by the society itself.

One of the perceptions adopted by people regarding cultural heritage is that cultural heritage is most likely to be monumental. The Polish Ministry of Culture and National Heritage Department conducted a research and prepared a report on the perception of Polish people towards cultural heritage in 2012. As Goral (2014:1) states, the participants of the study identified cultural heritage as both material and spiritual achievements of a particular social group and a part of the past, which is a testimony to people's identity, mostly associating the concept with historical monuments. The examples given by the participants were mostly architectural objects of great importance to the history and cultural identity of the nation. However, this perception is not merely limited to Polish society, in fact, most people have the tendency to relate heritage with monumental architectural objects. This perception establishes a misunderstanding in societies, and in consequence, people do not grant cultural heritage the appreciation or value which it deserves in many cases.

Another misunderstanding people foster concerning cultural heritage is that it is only related to positive feelings; therefore, only positive heritage needs to be preserved. However, there is a negative type of memories that people might want to preserve, as it has heritage value as well. As Wagstaff (2015:195) remarks, since the late 1990s, the attention has increasingly turned to the role of memory in the dark side of the human heritage. This type of heritage has been addressed in various ways by different scholars, including difficult heritage by Logan and Reeves (2009), dissonant heritage by Tunbridge and Ashworth (1996) and heritage that hurts by Wagstaff (2011). Even though this kind of heritage might innate disagreements between different groups in a community, it is as valuable as positive heritage, since it lets people remember history the way it was. In that regard, the conflict around negative heritage in the global arena might raise questions what to preserve and what not; furthermore, what is worth preserving and what regulations should be considered in the decision-making process of evaluating cultural heritage.

However, it is not just negative heritage, but the heritage evaluation in general, which might have different approaches and divergent norms as well. According to Staiff (2014:3), the notions of cultural heritage and its meaning are complex and dynamic concepts which involve various dimensions and subjectivity in the ways to experience and interpret it. Furthermore, as Paszkowski (2011:305) states, the values in heritage have a diverse character, and the criteria for assessing them are variable. Especially the rapid change in the natural and cultural environment has an impact on architecture and architectural heritage that affects the functional, spatial and aesthetical needs. Therefore, all these changes re-emphasize the question of how to

treat and preserve the architectural heritage; furthermore, these changes give rise to different approaches and competing norms for assessing heritage value.[11]

Evaluation of Cultural Heritage

Over the centuries, the concept and the treatment of heritage and approaches to the conservation of it has changed as values have changed as well. As Vecco (2010:321) states, in the contemporary concept of heritage studies, the monument is no longer considered alone but in its context, which means the adoption of an integrated approach towards heritage. In parallel with this process, the selection criteria for cultural heritage have changed as well. According to Vecco, while initially the historic and artistic values were the only parameters in the evaluation of cultural heritage; additional ones have now been added.[12] One of the first people who tried to establish different values for cultural heritage is Riegl (1903:71), who wrote a study to define the theoretical aspects of the work. In his work, Riegl describes the development of the concern for monuments in a historical context and defines the different distinguished types of values, which are essential for the process of cultural heritage conservation. He classifies the different value types as commemorative value (age value and historical value), intentional commemorative value and present-day value (use value and art value). However, even while this classification appears to make sense, some of these values can be relative. The age value of a building might seem to be mainly determined by how long that building has existed; however, it might depend on the contrast between the old and modern. Furthermore, the historical value might occasionally depend on the nation. A building or a monument can contain meaning for a nation, but it might not be valuable for people from different backgrounds. Therefore, while trying to decide what should be preserved and what not, it is essential to try to understand and evaluate buildings in their own conditions and their own environments.

Moreover, artistic or art value of heritage can be relative as well. An artefact might not satisfy the criteria of the understanding of aesthetics in the contemporary meaning, but it might still have been unique in the period it was created in, which would give its artistic value. Therefore, in some ways, the values which are conferred

---

[11] This section contains information from the article of the author with the details below: Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas, Lithuania. *Journal of Cultural Heritage and Sustainable Development*, 9(3), 430–443.

[12] This section contains information from the article of the author with the details below: Doğan, H.A. (2018). Impact of memento value on the perception of cultural heritage: Case Study of the modern movement and the dialect of Kaunas, *Journal of Science-Future of Lithuania*, 10.

to cultural heritage can be contingent; furthermore, they can only be understood by the reflection of them in the society. As a result, such values, which have been assigned by scholars and different organisations, are not necessarily reflected in the society, although they do provide a useful classification (**Table 1.**).[13]

Table 1. Classifications of different values of cultural heritage, which were proposed by different organisations

RIEGL(1903)	ATHENS CHARTER(1931)	VENICE CHARTER(1964)	AMSTERDAM DECLARATION(1975)	APPLETON CHARTER(1983)	NARA DOCUMENT(1994)	SAN ANTONIO DECLARATION(1996)
AGE	HISTORICAL	HISTORICAL	CULTURAL	CULTURAL	CULTURAL	TESTIMONIAL
USE	ARTISTIC	ARTISTIC	HISTORICAL	AESTHETIC	ARTISTIC	HISTORICAL
NEWNESS	AESTHETIC	AESTHETIC	IDENTITY	CONTEXTUAL	HISTORICAL	IDENTITY
HISTORICAL		ARCHEOLOGICAL	SOCIAL	ARTIFACTUAL	SOCIAL	SOCIAL
COMMEMORATIVE			AESTHETIC		SCIENTIFIC	ECONOMICAL
						DOCUMENTARY

BURRA CHARTER(1998)	FARO CHARTER(2005)	QUEBEC DECLARATION(2008)	NEW ZEALAND CHARTER(2010)	UNESCO WORLD HERITAGE CONVENTION DOCUMENT(2017)		
HISTORICAL	REMEMBERANCE	SOCIAL	AESTHETIC	MONUMENTAL	SYMBOLICAL	AESTHETIC
SCIENTIFIC	HISTORICAL	HISTORICAL	ARCHITECTURAL	SCIENTIFIC	TECHNOLOGICAL	SCIENTIFIC
AESTHETIC	IDENTITY	CULTURAL	ARCHAEOLOGICAL	COMMEMORATIVE	TRADITIONAL	ETHNOLOGICAL
SOCIAL	CREATIVITY	POLITICAL	SOCIAL	SPIRITUAL	HISTORICAL	ANTROPOLOGICAL
SPIRITUAL	ECONOMICAL	SPIRITUAL	FUNCTIONAL			
CULTURAL		ARTISTIC	HISTORICAL			
		ENVIRONMENTAL	LANDSCAPE			

However, as **Table 1.** shows, the criteria, which were applied in contemporary documents, are more about the theoretical classification of identifying values, rather than demonstrating the impact of the cultural heritage in practice. As Gibson (2009:2) states, "The value is not an intrinsic quality but rather the fabric, object or environment is the bearer of an externally imposed culturally and historically specific meaning, that attracts a valued status depending on the dominant frameworks of the value of the time and place". Therefore, the commemorative value that Riegl defined in the early 20th century is one of the essential qualities of heritage. However, it has an emphasis

[13] This section contains information from the article of the author with the details below: Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas, Lithuania. *Journal of Cultural Heritage and Sustainable Development*, 9(3), 430–443.

on monuments or symbolic constructions as memorials rather than the cultural heritage that societies have and experience on a daily basis.

Furthermore, the set of classifications which has been assembled in the contemporary perspective does not contain the ingredient of peoples' perception of the heritage, such as the value of memory, which can be called "Memento Value". As Freidheim and Khalaf (2016:467) state, the value-based approaches in the evaluation of cultural heritage tend to fail, because the decisions are based on incomplete understandings of heritage and its values. Furthermore, according to the proposed model of Stephenson (2008:134), cultural heritage can be systematically classified by forms, relationships and practices, rather than just assigned values. This typology intends to establish an attempt to capture how heritage is perceived by both experts and non-experts. Furthermore, it tries to cover the interpretation of cultural heritage related to identity, memories and sense of place. Combining the value-based approaches with memento value and redefining the classification with the aspects related to the interpretation of the society, as Stephenson does, can capture the full range of perception in the evaluation process. As Samalavičius (2003:18) states, the interaction of cultures increases cultural resistance and strengthens the need for identity or identities in the globalising world. People and societies will continue to have a requirement for reflecting their identities, and memento value of heritage is one of the ways to reveal the identity. However, especially when there is an attempt to evaluate the heritage, the importance of memento value is often disregarded, while it is significantly crucial, especially concerning architectural objects. Buildings, artefacts and environments and the meanings they represent are often integrally tied to the identity and the memories of society; therefore, while analysing the value of heritage, it is important not to omit these properties. Considering memento value of the heritage can make it possible to assign a heritage level to a place, which does not explicitly accommodate the other values that a heritage contains, and thereby, it would support the evaluation process in a way that society could appreciate.

In 2003, UNESCO established a new emphasis on heritage by focusing on the process rather than the product, with the Convention of Safeguarding the Intangible Cultural Heritage. In this convention, UNESCO defined intangible cultural heritage as "Traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts". However, this definition of UNESCO does not clearly emphasise or reflect the importance of memory in heritage and its impact on society, furthermore, environment and architecture. A shop which does not have any aesthetic, economic or academic value, and furthermore, which does not have long-term cultural value, might still have meaning for the society that is related to their collective memories. Therefore, the memento value in heritage establishes a memoir for the society, which originates cultural, historical and age values, especially in architectural objects (**Chart 3.**).

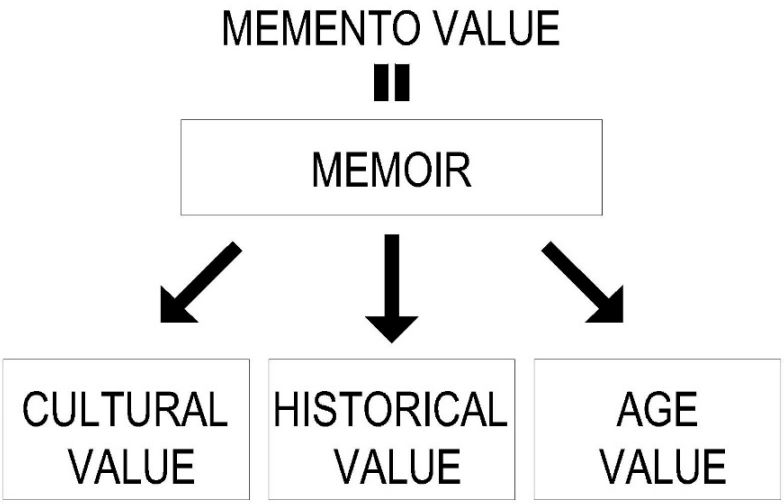


Chart 3. The relationship between the memory value and other types of values in the heritage evaluation

In regard of the properties of architectural objects, it is possible to state that they acquire a distinction from the other art forms, related to their impact on the environment, furthermore, to the impact of the environment on architecture. As Sun (2017:9) states, unlike the other fine arts forms, architecture is more public, site-specific, constrained by the functionality and immersed in everyday life. As a result, it is not conceivable to isolate a building from its surroundings and the environment, since it has a strong connection with the locus. Furthermore, the function of a structure cannot be separated from the society and the perception of society. As Taylor-Foster (2015) states, especially civic buildings have the function of being a symbol of a community's shared values and standards of life, which is equally important as more immediate functions of a building. Therefore, in valuing architecture and architectural heritage, the notion of an artefact has various evaluative perspectives, and one of the essential notions is the memento influence in its language.

However, memento value can be traced in the language that architecture uses in new settlements. The expression of genius loci in architecture implies the reflection of memory and symbols which originate from the society. Therefore, it connects the structures with space and time. This property of architecture is essential for human beings to associate themselves with the place. Furthermore, it helps people to feel more comfortable in the environment they inhabit. As Edson (2004:337) states, history is based on perspectives; however, spatiotemporal continuity is a necessary condition for identity. Therefore, the relationship between space and time influences the perception of history for establishing identity, and in that regard, the memento value of space is not just crucial for valuing heritage, but it is crucial for the language of forms, which attempts to attach roots to the space as well, that it could become a meaningful place for the residents. As a result, architecture communicates with

memories, but it can communicate values and a sense of place with the impact of memories.[14]

Memory is an essential condition of people's cognition and reflexive judgement, and it helps people to keep their connection with their past. However, even though memories and remembering seem as if they are related only to the past, they have an immense amount of impacts on peoples' lives in the present. Furthermore, they can bind people into a society or cultural community by the shared past, which establishes social values and rules as well as a shared heritage. Moreover, memory plays a crucial role in the process of identity building, which has an impact on the process of establishment of a shared heritage of a society. Therefore, memory and heritage have a strong connection and relationship, since heritage is a carrier of memories that people can observe in the present, and it can build bridges between the past and the present.

Another strong connection that memories and cultural heritage have is the effect of cultural heritage as visual records. Memories are profoundly influenced by images which are triggering the process of remembering. According to the studies on the impact of images and pictures on remembering, people are more likely to remember images rather than verbal inputs. As the theory of the dual coding suggests, the verbal and image systems are correlated, as one can think of the mental image of an object and then describe it in words or read or listen to the words and then form a mental image (Defetyer et al., 2009:265). However, it is much easier and much faster to connect a verbal input to the images, rather than attach an image to the verbal information. Therefore, images tie into memories stronger than the words.

In that regard, cultural heritage is as well an essential infuse for this process, because cultural heritage gives the effect of the images towards memory. Furthermore, it does not just contain images, but it as well provokes other sensations as well, which generate a stronger connection, especially with the environment people inhabit. Therefore, this relationship between images and architecture and especially cultural heritage establish a crucial impact on memory, and memory affects the associations and the perception of people, which help to generate the sense of place (**Chart 4.**).

[14] This section contains information from the article of the author with the details below:
Doğan, H.A. (2018). Impact of memento value on the perception of cultural heritage: Case study of the modern movement and the dialect of Kaunas, *Journal of Science-Future of Lithuania*, 10.

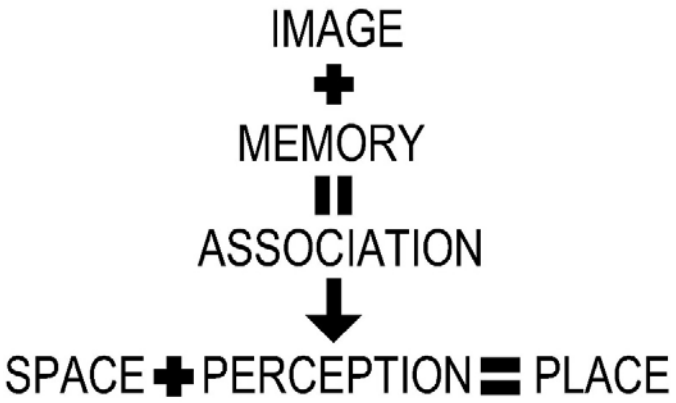


Chart 4. The relationship between image, memory and place

However, living in the society has an impact on memory. Even though memories seem as if they are individual acts, they work in collective conditions. It is more likely for people to remember events better when they live in a society who are sharing the same memories. Furthermore, when memories work collectively, they establish the cultural memory which society needs for the identity. The identity people have might be various and have multiple forms, such as individual identities, familial identities, territorial identities, class identities, religious identities, national identities, race identities, cultural identities, ethnical and gender identities. All these different identities (self-identity and group identity) are intimately connected with the events and history, which can be associated with the environment. Furthermore, all these different identities are needed for feeling a part of a group, keeping the societies together, and moreover, shaping the environment itself as well.

Spatial experience that people have from their environment does not merely affect the impression it creates physically, but it affects the perception and feelings that people have as well. Therefore, people have the tendency to express these feelings in their surroundings. The cultural identity and cultural memories that people have can create a reflection on architecture, and it can be easily traced, especially in the vernacular architecture and in the language that architecture uses. Ideal beauty and ideal function differ related to the identity and the culture of the societies; therefore, if an architectural style is considered to be accepted, it needs to carry elements related to the environment and the norms shaped by the people living in that environment, which holds for the cultural heritage as well. The built environment is the product of people who live in that place, and it might be possible to state that they are the frozen memories of people who do not speak. However, they express a meaning of the language of architecture for the interpretation of people. The immovability of architectural objects and the language they use reflect the habits of people, and it is the expression of life in a stable manner. Therefore, the information, which is gathered by analysing the language of architecture, can give necessary knowledge about the society and their perception of the environment.

However, the perception is highly affected by the memory, since the prior knowledge influences the perception itself. Therefore, the perception of the society regarding their environment is an important element in the evaluation and preservation process of cultural heritage. When people cannot relate to the construction or the environment, the process of achieving preservation or assigning a new function to the cultural heritage becomes more difficult. In that regard, it is crucial to understand the relationship between the memory and the language of architecture.

2. ARCHITECTURAL LANGUAGE AND LANGUAGE OF THE MODERN MOVEMENT

The concept of analysing architecture as a language is an ongoing discussion between the architecture critics. Scholars such as Jencks (1991:39) believe that architecture contains linguistic features which makes it a language. However, other scholars such as Broadbent (1974:126) claims that architecture is not a language because it does not have the specific elements or rules of language, and it is not easy to read or identify architecture as it is with language.

Especially the different approaches and languages in architecture, which are embodied in the 20th century, such as Art Deco, Regionalism, Existence Minimum, are still creating confusion in their categorisation and identification in architectural history. However, each of them has different characteristics and elements when they are analysed carefully, related to the different form and pattern languages they use. Moreover, not just different approaches, but the Modern Movement as well has established different dialects in its expression, which include the usage of ornaments as well as other elements which are reflecting culture. It is possible to detect cultural and traditional forms in the usage of buildings, which would generate functionality. Ideal usage and ideal beauty differ from culture to culture, and more specifically, from people to people. In that regard, if the Modern Movement can be considered as a functional style, it should contain the traces of nations or cultures it is representing. Therefore, a comparison between different cities which represent the expression of the Modern Movement as the architectural style in different countries can be instructive for understanding the Modern Movement and its characteristics. The research on Berlin Modernism, Ankara Modernism and Kaunas Modernism can give information about the cultural elements, which can be used as determining factors in architecture and specifically in the Modern Movement.

The analysis of the language of Modern Movement and different dialects of this era is an instructive method for determining the impact of traditions and cultural memory in different geographical areas, furthermore, understanding the appraisal of the cultural heritage by the society, since the artefacts of this era are not perceived as cultural heritage in most cases. Therefore, examining the Modern Movement can help to comprehend how people are evaluating heritage, and furthermore, determine the indicators, which are perceived to influence the appraisal of cultural heritage, which can be adopted in adaptive re-use strategies. However, it is important to understand how architecture can be perceived as a language first.

2.1. Architecture as a Language

The meaning of language in its most basic definition is the expressions people use for corresponding their needs for communication by the usage of words. Architecture can be regarded as a way of communication as well. However, the technique it uses is nonverbal, and it is unique. As Bakhtin (1981:84) states, if the text can be comprehended in a broad sense as any coherent complex of signs, even the study of art and architecture deals with texts. The essential element in communication

is to understand and interpret what the interlocutor refers to, and it is the same in architecture. However, in architecture, the meaning is not always obvious. As Rapoport (1982:13) states, people react to environments regarding the meanings they attach to them. Therefore, for understanding a building or an environment, people need to perceive it in a way that they can understand. In that regard, architecture can be identified as a form of language in itself, which communicates by the specific way it applies, and it can be analysed by linguistics.

The basis of linguistics comes from three main principles, which can be implemented in architecture as well. The first one is syntax, which represents a set of rules in language, and it can be detected in architecture. There are no verbatim rules or grammar in every architectural object; however, it might be possible to find rules in architecture, which can identify the preferable solutions that would establish criteria. The second principle of linguistics is semantics, and it produces the meaning of language, which applies to architecture as well. As Donougho (1987:55) states, architectural objects are expressive, and what they express is the meaning. Furthermore, as Eco (1997:182) states, people tend to experience architecture as a tool of communication, even while they acknowledge its functionality. Therefore, architecture is commonly recognised by people regarding its communicative and physical peculiarities. However, the meaning architecture carries can be endogenous, which can signify nation, culture or religion. The last principle of linguistics is pragmatics, which demonstrates the impact of language on the social context. The pragmatics of architecture can be perceived differently by different associations, which it establishes in various societies; however, it can still be detected in architecture. As a result, it is possible to recognise all these conventions in architecture, which create a phenomenon to examine architecture as language.

One of the scholars who studied architecture as language is Jencks, who undertook extensive research on the subject. He applied the concepts of linguistics, which would explain the common communication models of architecture. The concepts that he applied for understanding architecture were metaphor, words, syntax and semantics. As Jencks (1991:40) asserts, the metaphor is a concept where people invariably see one building regarding another or regarding similar objects. The words were defined as architectural units that establish the dictionaries of architecture, which explain the meanings of architectural elements that are comprising the form language of the building. For bearing comparison with composing sentence in a language, syntax was explained as a physical and geometrical logic in construction, which gives unique expression to the building, and semantics are the different impressions, established by various architectural styles, which reflect the effect of Classical Orders. When architecture is analysed in this perspective, it is easy to notice that it has a vast number of similarities with the way language is used in communication.

However, there are scholars who have different claims about the relationship between language and architecture. Broadbent (1974:126) asserts that buildings are not constructed from the elements of language, nor are there clear, distinct and agreed on correspondences between the elements of architecture and the elements of language. However, if the architecture is accepted as a way of expression, it should

be using a language for expressing itself, even though it might not be apparent to everybody. Architecture has its own traits, and these traits provide a system, which establishes a meaning. The code that the architecture uses aims to communicate the architects' intentions and the aspects they want to express to the users of buildings. However, when people look at a building, their perception of it, the meaning they attach to it or the way they see it might vary and be relative. Although, if buildings have their own languages, it should be possible to read a structure in the same way people can read a written document.

As Gibson (1950:200) states, the visual world is an unlearned experience that is meaningless when seen for the first time, and people learn to see the meaning of things and situations by experiencing it. He argues that some of the meanings people associate with objects differ due to their use or the satisfaction that they get physically or emotionally, which might create either an abstract or social meaning. Most of the time, architectural forms contain both of these meanings. Albeit, Whyte (2006:153) states that architecture is not, in reality, merely a language, and buildings cannot, in actuality, merely be read. He argues that architecture is more like a translation and interpretation rather than a reading. His argument can be valid in a sense, because if architecture was just a language, it would be possible for everybody who knows that language to understand it entirely. However, every architectural object and every architectural style have their own interpretation and meaning in themselves, depending on who is reading it. Furthermore, it is as well closely related to the environment that the building is constructed in. It is possible to perceive the same structure in different surroundings differently and enhance the symbolic meaning of it from a different perspective, which raises discussions on the topic, if architecture is a reading or do you actually need to interpret and understand it.

According to Forster (1999:2), the architecture is so omnipresent in peoples' lives that buildings have become their second nature, and they affect people even unconsciously. Therefore, the ability to read architecture and interpret its meaning have an essential impact on peoples' daily lives. The architecture establishes its own way of communicating, and it constitutes the realm of visual culture for people. Nevertheless, when scholars speak about the language of architecture, they do not necessarily assert that it is just a reading, but they indicate that it consists of three essential topics: the interpretation of architecture, the expression of architecture and the meaning of architecture. The urbanist and controversial theorist Salingaros (2006:220) states that architecture is established by two distinct, complementary languages, i.e., a pattern language and a form language. The pattern language involves the interaction of human beings with their environment, and it is appropriate for local customs, society and the climate where the building is constructed in. It is a set of inheritably tried-and-true solutions with optimisations, which develop human life and a sense of its well-being.

Pattern and Form Languages

The definition of pattern language in architecture was first proposed by Alexander (1977:1120). In his research, Alexander pointed out that, while many, if not most, patterns are universal, there is an infinite number of existing individual patterns, which can be included in the pattern language. As he explains, each pattern language tends to reflect a different mode of life or customs or behaviours according to where the pattern was born. Additionally, it is appropriate to specific climates, geographies, cultures and traditions. Therefore, the pattern language of a building establishes the interpretation of the architecture and how architecture was formed in different regions by the effects of the local architecture. Pattern languages can contain visual symbols as well. As Kiroff (2002:79) states, the specific arrangement of visual symbols or patterns that the pattern language has is governed by the rules of that particular language, and it establishes in clusters. The hierarchical positioning of patterns reflects the areas of influence. Furthermore, the patterns, which have equal importance, tend to be in close proximity in the horizontal direction. Therefore, the visual symbols that pattern language contains can organise the attention and the perception of the façade.

However, the effect of pattern language and its visual symbols are not only in architecture as a single building, but in the perception of the urban fabric as well. As Tufte (1997:79) explains in his book called *Visual Explanations*, paired images enforce direct visual parallelism, and they can be perceived in space and time. According to Tufte, space can be demonstrated with the help of two images located in proximity to each other, such as two views of the same object, and the time can be demonstrated by using 'before and after' presentations. Therefore, having a specific pattern in a city or in an urban fabric, which is achieved by visual symbols, can establish a connection, and furthermore, it can create the effect of continuity on the notion.

Moreover, the existence of the visual symbols establishes a mental image of the city and guide people to have a mental map of the environment they live in. As Lynch (1960:1) states, people in the urban environments orient themselves in the city by the mental maps they create for themselves. However, the building of mental image of an environment is a two-way process, which is related to how people see things and others, but at the same time, how others see people as a part of the environment as well. Therefore, it is about the interaction between the observer and the environment, and it reflects the influence of the observer and the environment at the same time. As Moughtin (2003:26) points out, city order is related to the way, in which people perceive or read and simultaneously understand the environment. It is the same what regards the pattern language of buildings, since it is closely connected with the perception of people. Moreover, it is more likely that people will be able to associate themselves with the patterns that they have already known or that they have established a mental image of it previously.

Furthermore, it is the same in smaller scales, such as interior design. When people see the mental patterns that they can associate themselves with, it is more likely

that they will feel more comfortable in those environments. A project, which was designed by Romanian photographer Bogdan Girbovan in 2008 about ten identical apartments and their use by different individuals, can be demonstrated as an example of mental patterns and ideal usages. He photographed ten identical flats in a building. However, the way people use these spaces is different. Therefore, the ideal usage and ideal beautify for people varies, and it is essential to establish an environment, which would fulfil the needs of the users by adopting the pattern language (**Chart 5.)**.

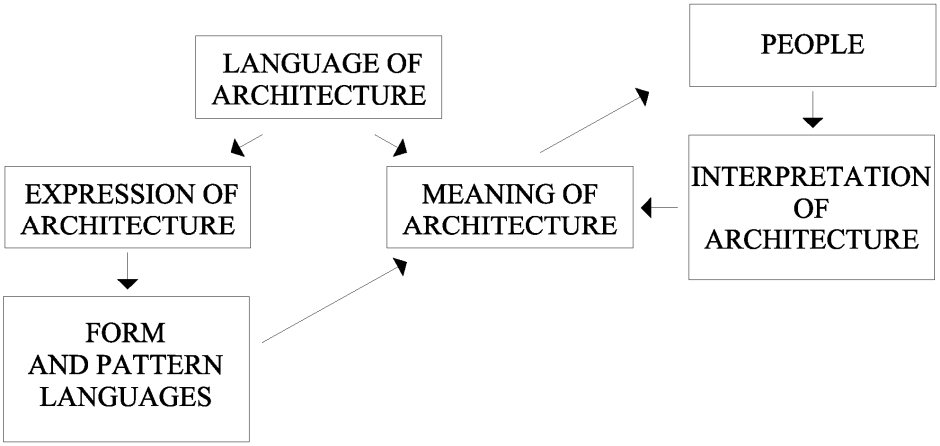


Chart 5. The connection between language of architecture and people

However, the form language is defined by the elements of a building, which establish the whole. The elements, which determine the form are floors, walls, windows, doors, ceilings, partitions and all architectural components, which together represent the style. In the accumulation of all the different elements in the form language, the building expresses its architectural style. However, every traditional architecture has its own form language as well, which is established from various influences of daily life, traditions and practical concerns that are acting together to define the structures that take the most natural visual expressions of a specific culture. As Van Haeren (2014:1) states, architecture becomes an accumulation of circumstances of a culture and a signifier of collective, when it establishes a system of relations between the differentiating elements. Therefore, the form language, which is used in architecture, is affected and influenced by the culture like the pattern language, although by the pattern language, buildings become more readable and understandable, since it is possible to have a form language, which is universal. However, it is not easy to have a pattern language, which would be valid in every culture, since they have their own characteristics related to the region.

When pattern and form languages of the building merge, they establish the meaning of a building. One of the examples of this establishment is the classical style or, in particular, the classical language of architecture. Buildings, which have classical language, are successfully adapted to the local climate conditions, and further owing to the materials, which can be provided around the area. Therefore, they contain the

meaning and the description of beauty at the same time. Hence, the understanding of beauty might vary depending on the perception as well as the culture. There are still universal values of beauty, which make it more of an objective matter rather than a subjective one, such as proportion and aesthetics. Therefore, it is essential for architecture to carry these values. As Venturi (1966:16) states, valid architecture should evoke many levels of meaning and combinations of focus. As a result, if architecture contains both pattern and form languages, it is likely that the architecture will be valid, which includes the meaning of beauty as well.

However, as Bonta (1979:30) states, when substituting the meaning for beauty, there is a distinction between indication and communication expressed in the 17th century terminology. There is a natural meaning of beauty when things are beautiful in themselves naturally, and they are called indexes. Moreover, there is a customary meaning of beauty, which includes the elements that are meaningful due to people's familiarity towards them and their culture, which are called signals. In that regard, ornaments and patterns that were used on the façades of buildings are examples of signals. For culture to survive and continue its existence, there is a need for stability and continuity in the signals. Furthermore, the lifespan of architectural styles is related to the understanding and the reflection of the indexes and signals. The difference and the conflict between signals and indexes as well appeared in the Modern Movement era on defining the meaning of beauty. As Bonta (1979:31) states, the signals in the Modern Movement were socially accepted, but at the same time, they were irrational. However, indexes were rational, but they were individualistic rather than social. In the Modern Movement, international indexes gained a more significant role than the signals, which is related to the fact that indexes are more subjective than the signals, and the perception of these indexes can be veritable. However, the specific approach of the Modern Movement presented some new questions.

French theorist Paul Ricoeur raised the question of how to be modern while upholding the tradition (Pellauer, Dauenhauer, 2012). Moreover, Kenneth Frampton (1983:9) tried to answer this question, pointing out that it is critical to adopt universal values of the Modern Movement when considering the geographical context of the building. In that regard, it is possible to agree that it is critical to adopt universal values, since it is essential, but it does not always mean that universal values will be functional for everyone as can be noted in the example of 20th century architecture. According to Salingaros (2013:41), the form languages of the 20th century were detached from the pattern languages; therefore, the form languages were no longer part of an adaptive system of architecture. Furthermore, they became independent entities. As a result, a new form language was invented, which could not adopt the pattern languages that are related to the traditional and cultural expressions. Therefore, the peculiarity of pattern languages, which determine the human adaptation and connection with nature by the impact of ornaments, has been lost in the discourse of the Modern Movement.

2.2. Ornament: A Form of Pattern Language in Architecture [15]

Ornament, which is an expression of pattern language in architecture, is any element added to an otherwise basic, structural form, usually for purposes of decoration or embellishment (Kuiper, 2007). There are various ways to add ornaments to a surface such as by carving the surface material, which can be stone or wood, creating a form with plaster or clay and painting or impressing shapes on the surfaces (**Pic. 1.**). Ornaments can be flat on the surface, it can be incised (a cut below the surface), or it can be in the form of a relief (raised above the surface).

Pic. 1. Different implementation techniques of ornaments

In addition to this, regarding their shapes, ornaments can be mimetic with natural and floral forms, they can be symbolic, and they can be geometrical as well (**Pic. 2.**).

Pic. 2. Different shapes of ornaments

[15] This subchapter contains information from the article of the author with the details below: Doğan, H.A. (2018). Is Ornament a crime: Ornament usage in the modern movement and its impact on society's perception, *Journal of Architecture and Life*, 3(1), 113–127.

However, in history, ornament has not been used just for decoration but for expressing culture and traditions of a culture as well. Furthermore, ornaments expressed the characteristics of architecture, which easily communicates with a wide range of people. Therefore, ornament is the contemplation of the way society communicates with the accumulation of shared culture and memory. As Gottfried (1989a:52) argues, architecture did not originate in the construction of a wooden shelter, as Laugier stated. According to him, architecture was with all the simplicity of its primary forms but highly decorated and glittering from the beginning. Moreover, Gottfried (1989b:254) strongly suggests that since the usage of carpets with ornaments came before using real structures in construction in the form of separation, the first representation and production of architecture was coming from the motifs and patterns on the textile surfaces. Therefore, the expression of cultural and ideological identity by the carpets established the beginning of the process of constructing buildings. Even though his arguments are debatable, his emphasis on the ornaments and the importance of expression in cultural and ideological identity is valid. According to Islami (2009:59), Semper stated that ornament and surface expression is defining the architecture and forming an essential aspect of human interaction, rather than a secondary act of frivolous superficiality. Therefore, it might be possible to state that the ornaments are playing an important role in the contemplation of the way society communicates by the accumulation of shared culture in the expression of architecture. Culture grows through knowledge, experience and values of society, and it is a reflection, furthermore, a way of expression of a society in their way of life. It is closely related to the region and the environment. Societies tend to establish their own systems, which are interconnected with the beliefs and the values of their own, in the regions they exist, and ornament is a way of expression for these qualities in architecture.

The most specific example to provide the expression of culture and regional elements might be Greek architecture and the ornaments, which were used on the façades of their buildings. The acanthus foliage, which is commonly seen in Greek and Roman architecture, is related to the flora of Mediterranean. Furthermore, the meander motif that can be encountered in Greek architecture is based on the Maíandros River, which is in the Aegean region of Turkey. Consequently, the patterns, which have been used as an ornament, can vary depending on the region where the structure is located (**Pic. 3**). In that regard, the Corinthian column capitals, which have been ascertained in Kaunas/Lithuania, can be given as an example of this, since the usage of an oak leaf can be detected instead of acanthus leaves in this area because oak trees can be found in the flora of the surrounding. Therefore, ornaments have the effect of identifying, determining and locating the constructions they are on the surface of.

Pic. 3. a) Meander motif b) Corinthian column capital from Kaunas

Even though ornaments have various purposes in architecture, especially at the beginning of the last century, the usage of ornaments has decreased, and the topic of ornaments took a prominent place in the discourse of the Modern Movement. One of the reasons why the Modern Movement was against the usage of ornament was related to the eclectic expression of it at the time, and it did not match the primary discourse of the Modern Movement. As a result, in the Modern Movement, ornaments were seen as non-functional parts of the design, which as well did not have a meaning.

As Trilling (2003:21) states in his book *Ornament*, "The ornament is an art we add to the art". Hence, it is a part of façade, which gives visual pleasure to the observers and establishes the visual communication about the content of the surface. Even though, as social psychology specialist Glăveanu (2014:87) explains, ornament has different psychological functions, such as its meaning for individuals and societies, under specific circumstances, one function or a set of functions can become salient. Ornaments can contain different aesthetical and utilitarian meanings, which relate to the society or the environment people live in, and they have the function of being a cultural remark rather than just being a decorative element. The contemporary usage of ornament in that regard might even be accepted in the discourse of the Modern Movement, since the patterns, which are being used mostly, do not destroy the overall composition, and they are usually repeated patterns, which do not counteract with the design.

In history, the interaction of architecture and ornaments has taken a colossal role in the discussions between scholars and the expressions of different architectural styles. During their development, ornaments have evolved from the carvings inside caves to paintings and towards computer-based spatial expressions in the contemporary world. The debates about the ornament and the characteristics of it started to take place in the architectural history as early as the 1st century BC. In his book called *Ten Books on Architecture*, Vitruvius (1993:5) stated that extensive knowledge of an architect could be tested by its ability to explain the truth beneath ornamentation. Furthermore, Alberti (2006:25) described ornament as a separately attached element to the façade of the building surface which defines beauty. Therefore, according to him, ornament was not an architectural element but more as

an element that was subsequently attached to the building. However, Ruskin (1849) pointed out the difference between appropriate decoration and virtues. Even though ornament might be seen as a decorative element in the eclectic architectural approaches, the usage of ornament on the façades is not merely for establishing beauty but more about the reflection of social and psychological contexts. Architectural ornament might not be a structural element, which would affect the stability of the construction or conveyance of the system; however, it is an element, which gives meaning and identity to the building. Furthermore, it has the effect of adjusting proportion.

According to Kruft, Gibbs states that the beauty of architecture is only possible on the surface that is plain and not ornamented, because ornamentation is affecting the proportion, which establishes the beauty (Kruft, 1994:356). However, it is as well possible to use ornaments and at the same time keep the beauty and proportion of the façade. As Salingaros (2006:78) explains, the perception of architectural scales and the sensation it gives to people are affected by ornaments, and ornaments establish emotional and visual coherence. He states that *"*According to the system theory on architecture, higher scales depend necessarily on all the lower scales, and if we eliminate any architectural scale for no apparent functional argument, then we deny the coherence of the structure as a whole". Repetition and rhythm are essential for defining an attractive architectural façade, and jumping from larger to smaller scales establish an adverse effect. Therefore, ornaments fill in those gaps and establish the transition between the scales. However, while achieving that connection, ornaments need to be used systematically, because ornaments that are overused can generate chaos instead of richness. With all these different characteristics that ornaments are adding to the surfaces, they can establish the effect of flourishing and add individuality to buildings, which can create uniqueness.

Nevertheless, the attempt of the Modern Movement was establishing valuable and unique designs in architecture, in this era; however, buildings lost their identities because of their universal characteristics. According to the modernist belief, the ornament was causing obsolescence; therefore, if the objects or architecture did not have the ornaments, they would be treasured and valued all the time. In this regard, an immense amount of moral resistance started, and it found its most vehement attempt in Austrian architect Adolf Loos, who in 1908 published an essay against decoration, titled "Ornament and Crime". As Conrads (1971:19) states, when Adolf Loos came back from the United States in 1896, he brought back a remark of Louis Sullivan: *"*It could only benefit us if, for a time, we were to abandon ornament and concentrate entirely on the erection of buildings that were finely shaped and charming in their sobriety". In his essay, Loos (1908) used the argument that ornament was hampering nothing less than cultural evolution and human progress. He stated that ornament was a waste of human resources, health, materials and capital, and furthermore, "In a highly productive nation, the ornament is no longer a natural product of its culture, and therefore it represents backwardness or even a degenerative tendency". However, it is possible to view what Loos said from another perspective. Loos emphasises that ornament is no longer a natural product of culture, which can

be interpreted as the ornaments, which were used in the early 20th century that did not reflect culture or did not establish a bridge between the past and present, and furthermore, they were overused. Hereof, Loos never argued that buildings should not have ornaments, but he was against the inappropriate ornamentation. Therefore, the usage of ornament in that regard is not acceptable in any architectural discourse, except the eclectic approaches. Even though the impact of Loos's essay about the ornament is debatable, the social and economic import of his beliefs found a reflection in the Modern Movement's manifestos, teachings and practices; therefore, the usage of ornament in the 20th century lost its importance in the discourse on functionality.

Even though the usage of ornament might be seen just as decorative elements on façades without adding anything to the functionality of the building, it overlaps its re-emergence with social, cultural and economic status that is adding to the constructions. Furthermore, it gives meaning to the building by generating personalisation and uniqueness, and it helps people to remember. As Alexander (1977:1147) states, all people have the instinct to decorate their surroundings. However, decorations and ornaments will only work and be meaningful for people when they are properly generated. He asserts that ornaments and decorations are not only born from the natural exuberance and love for something happy in a building, but they as well contain a function, which is as clear and definite as any other function in a building. Furthermore, as Connerton (2009:40) states in his book called *How Modernity Forgets*, forgetting is more than just an individual's inability to remember, but it works on different temporal and semantic levels where a complicated process first affects the anonymisation of local and geographical space in the eyes of the individuals. Therefore, as a reminder, people as well need signs, which would remind them of their past, and ornaments and cultural symbols are able to achieve this goal. Moreover, the symbolic aspect of ornament can be used for representing the function of a building as well. Jencks (2011:15) argues that an iconic building has to carry plural meanings and mixed metaphors to continue its unique presence as a landmark. He asserts that making a critique of the decorated shed regarding the signs attached to the flat surface merges multiple meanings with functional and aesthetic dimensions, and this can be represented by multi-layered ornamental façades. Therefore, even though the ornaments are usually associated with the plasticity of buildings, they establish a relationship between the structure and the urban fabric of the area as well.

All these different characteristics of ornaments, which were mentioned above, have not been assessed in the Modern Movement because of the overly used ornaments in the architectural style, which appeared before this period. Therefore, the overly used ornamentation with only decorative reasons, furthermore, the imitation in ornamentation triggered the discourse of the Modern Movement. Moreover, the need for mass housing and the limited time for the whole construction, along with the cost and the decelerating effect of the ornaments had an impact on reconsidering the usage of them. As a result, it is not possible to detect ornaments on buildings, which used the approach of the Modern Movement as an architectural style in most of the cases, except for the regionalist approaches, where the architects are emphasising the usage of local materials. In the example of Kaunas, it is possible to see the ornaments, which

are the traces of the cultural memory of the society in a modernist structure. Memories are collective stimuli for societies, and ornaments work as stimuli for memories. People tend to feel familiar towards places and buildings where they have memories or which are carrying symbols related to their own cultures. Therefore, it is comprehensible to use patterns and symbols to which people can associate.

2.3. Language of the Modern Movement

The language in the architecture of the 20th century was affected by various factors, which were related to technical, economic and social circumstances of the period. However, one of the most important motivations of architects in this era was the ambition to establish a modern architecture for the modern industrialised society. As Heynen (1999:130) points out, the new architecture in the 1920s became associated with the desire for a more socially balanced and egalitarian form of society, in which the ideals of equal rights are represented. However, when trying to establish equality between people and establishing universal values, the newly adopted values did not involve traditional associations in newly formed societies. Therefore, the movement which shaped the society and the architecture in this new era became more secular and progressive, but it concurrently disrupted the connection with history.

According to Gusevich (1988:90), the Modern Movement was based on the elimination from the illiterate society of the bourgeois culture that applied pretentious ornament and kitsch to architecture, which took the form of eclecticism. Therefore, the usage of decorative elements and ornaments of different architectural periods in an eclectic approach motivated the architects of the time to work towards a new architectural language. The term 'modernism' that is applied to various types of architectural expressions began to be seen in Europe in the first half of the 20th century, and it additionally spread to the United States of America. One of the pioneers of this movement in the United States was Louis Sullivan, who stated his famous quote "Form follows function", which was adopted by the architectural discourse of the Modern Movement. However, the Bauhaus School and the creators of this school had a stronger role in this movement to become widespread. Bauhaus established the idea of the unity of building and architecture, and furthermore, it aimed to redefine all the different branches of art and crafts, and it developed a global and international style with specific characteristics in its language, which would be applicable all around the world (**Chart 6**.).

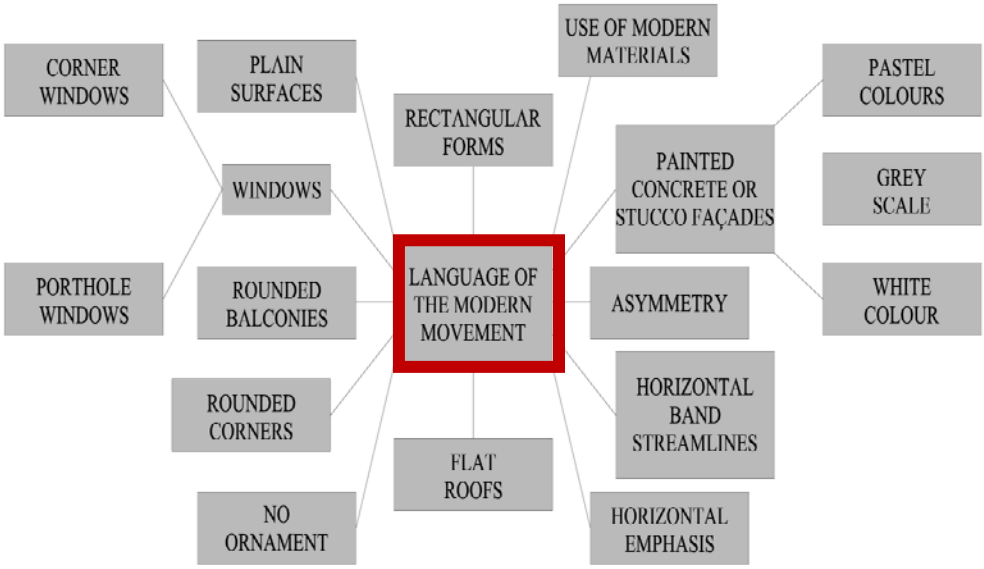
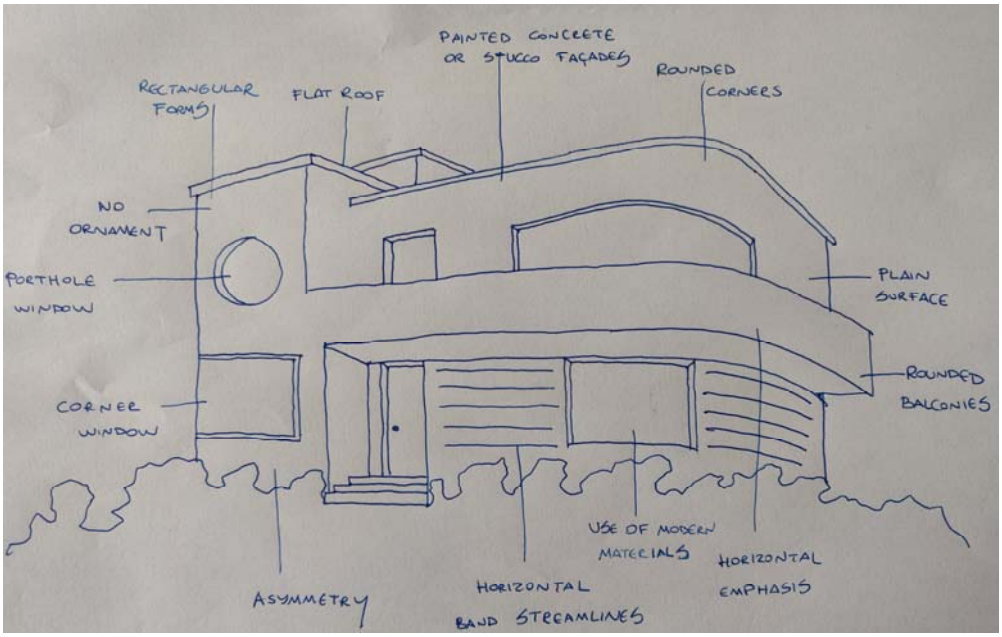


Chart 6. Characteristics of the language of the Modern Movement

However, the creating of international style required to make changes in the existing language of architecture, which had been in use for centuries. According to Zevi (1978:15), the classical language in architecture contained numerous variables, such as symmetry, perspective and proportion. However, even though the language of the Modern Movement was based on variables as well, and even if the function was the same, in the language that the Modern Movement used, it was possible to express the same function in various ways. Therefore, the new architectural language, which was established in this period, was formed by the creation of an inventory, which helped to produce free mass, free surface and free plans. Le Corbusier (1931:3), who is one of the pioneers and creators of the language of the Modern Movement, explains in his book *Towards a New Architecture* that architects should be given three reminders when using the language of architecture. These reminders are mass, surface and plan. According to Le Corbusier, the interaction between these three elements establishes the architectural object. As he states, mass and surface are the elements that architecture itself manifests, and furthermore, these two elements are determined by the plan. However, when the interaction between the plan and surface is analysed in the language of the Modern Movement, it is possible to state that even though the plan is functional for the users, in most cases, the surfaces are not as functional as the plan, and furthermore, most of them do not reflect or represent culture or memento for people, even though they are the elements where people have their first interactions with the structures.

In most cases, the elements of the form language of the Modern Movement included flat roofs, horizontal windows or horizontal emphasis on the façades either

by the structure itself or by band streamlines, corner and porthole windows, rounded corners and balconies, rectangular and asymmetrical forms and masses, painted concrete or stucco façades by various colours, such as white, different shades of grey or pastel colours (**Pic. 4.**). All these characteristics of façades of the Modern Movement had a unique expression and representation to the people in its language, which was different from the traditional forms they were used.



Pic. 4. Elements of the form language of the Modern Movement

What façade is representing to people or even the importance of the façade in the scale of the city was understood differently by some architects in the Modern Movement period. As Tozer (2011:201) states, Adolf Loos regarded ornament as convenient for applying to the public buildings, however, not for residential buildings, because, according to Loos, the blank façades of residential buildings had the ability to operate as a mask that the inhabitants could lead their own private lives, while the public buildings needed to communicate their functions. However, the residential buildings as well have a reflection in environments, and they cooperate in the establishment of the image of the city. Furthermore, as Maria Szadkowska quoted from an interview with Adolf Loos, he stated that "I never play around with the façade, that's not where I live. Take out your chairs, sit in the middle of the street in the rain and look at the façade. If I make a façade toward the street, I try to make the ground floor nice, at most put marble around the floor above it. Above this level I leave it

bare, I can't see that far myself"[16]. Therefore, even though façades are elements where people have their first interactions with structures and the displays of the design for the people who are living in the environment, most of the time, the Modern Movement surfaces and the language it used were ambiguous and did not reflect the interior or the characteristics of the people who are inhabiting it, which eventually prompted problems and discussions.

One of the problems that occurred with this modern architecture was an argument about the systems and the form languages, which were adopted by this style that have not been sufficiently tested or proven. The most specific example of that was the use of horizontal windows and flat roofs, which were incorporated into many designs. Traditionalists argued that vertical windows light rooms more efficiently. Furthermore, the flat roofs were not achieving the goal of conducting the water away from the façade and protecting the façade from the weather conditions. Therefore, these forms were not functional. As Michl (2011) stated at a conference, which took place in the United Kingdom in 2011, despite the fact that the idea of functionalism in modernism is seemingly aimed at the user, the root 'function' in 'functionalism' is provided as a classification of the place where the forms are to be extracted. Therefore, it was not firstly about the function itself, but it was more about the form, and as a result, the architectural language that the Modern Movement adopted was not aimed at the user. In that regard, the Modern Movement can be criticised. However, in the implementation of the Modern Movement, it is possible to trace different representations in different countries.

The second problem was the language of the Modern Movement and its attempts at establishing a universal language and an international style, which was functional for everybody. However, the universal language did not correspond to the perception of the aesthetic values of every society. According to Benevolo (1989:494), Persico states that if someone wants to consider architecture, which is apart from the aesthetic formulation, rather than speaking about internationalism, they should return to the concept of the world that is entirely rational and intelligent. The expression of the Modern Movement was overly rational, and furthermore, it was defined by material facts rather than the spiritual and cultural impacts of architecture on people. Consequently, the Modern Movement, in general, did not seem dependent on local historicity or any national vernacular architecture, which established weakness in this style. Most of the time, being international has been criticised as forcing society for being identical and independent from local traditions. As Carrera (1998:3) states, a built environment, which is dysfunctional for people, is often the symptom or the result of designers being in conflict with the people using it. As a result, when the buildings stopped considering the geographical values of the environment, they started to lose their local characteristics, and at the same time, they lost the peculiarity of being functional for people who inhabit that area. However, it should be possible

[16] Website of Adolf Loos Apartment and Gallery, Villa Müller https://adolfloos.cz/en/villa-muller [accessed: October, 2019].

to establish the form of buildings related to the function, which would be suitable for users and their requirements. Furthermore, adopting universal values, but at the same time using traditional patterns, can manage to create architecture that is sensitive to the values of the users.

Indeed, some of the dialects of the Modern Movement achieved to establish new languages in architecture by involving adaptive design methods, which contain traditional materials and the usage of ornaments. Adaptive design methods can be identified as a format of design, which tends to be respectful for both structural levels of architecture (form language) and, at the same time, the environmental characteristics (pattern language). Therefore, by applying adaptive design methods, it is possible to create architectural languages, which adapt both physical human use and human sensibilities. As Salingaros (2006:221) states, the rate of transmission of visual style among human minds can depend on different factors, and the success of an architectural style is governed by the association of the memes that can propagate. Therefore, a design method, which can adopt the form and the pattern languages of the environment, is more likely to accommodate human sensibilities, which would result in the psychological comfort for people.

In conclusion, even though the language that the Modern Movement adopted contained strong initiatives, related to the theory and the discourse it had, it was still flexible while expressing its own language by the dialects it created in different places, which are directly related to the people who are living in that region. Furthermore, it launched an era all over the world, which was focused on social development and innovative technologies in material and construction techniques. In that regard, even though it has been adjudicated in architectural history and accused of failing to re-define the culturally inherited patterns under the unchangeable principles of rational thinking, it managed to establish a new language in architecture, which has an impact on present times as well.

Postmodern Criticism towards the Modern Movement

In his Gentle Manifesto, Venturi (1966:16) states that "Space and elements in architecture become readable and workable in several ways when it is 'both/and' instead of 'either/or'". However, having both/and should not mean that the design needs to contain everything, which can result in the creation of an eclectic architecture. It implies that it is possible to consist various elements as long as it does not affect the design itself. The both/and approach was not used in the Modern Movement, especially in the sense of ornaments, since the discourse was based on simplicity, and the ornaments seen as if they were intricate. However, ornaments do not allege to interfere with the simplicity, but they can establish simplicity when they are used in the right places with the right intentions. In that regard, the usage of ornament in architecture is even possible in the Modern Movement. Furthermore, there are some different dialects that occurred in the language of the Modern Movement, which contains ornaments and uses both form and pattern languages for expression.

As Salingaros (2006:222) states, along with the many other changes that occurred with the industrialisation of the building process in the 20th century, traditional form languages around the world were lost. Developments in construction technology, engineering, building materials, such as steel, iron and plate glass, culminated in a style that is functional, and this changed the way architects see design. The form languages that were applied in the previous approaches started to transform into a new language by the usage of modern materials and techniques. However, the aim of the Modern Movement was not about establishing a style, but more about revitalising the influences in the design itself, and as a result developing a language, which can be implemented universally. As Habermas (1987:4) states, modernity and modernism assumed that present is a new era; therefore, it is not a continuation of the past, but instead, it tends to grow out of the rupture with the past and traditions. Consequently, modernism in architecture focused on defining transformations in building design, which involved changes in the traditional forms, materials and construction techniques of the past for establishing the new era. As Gropius (1925:7) states, placing the emphasis in architecture on individuals might be a wrong approach, in fact, the ambition to develop a unitary view of the world can underline the requirement to free the values of spirit from individual restrictions. However, according to Hitchcock (1966:36), this approach established placelessness, which can be cited as the spirit of the Modern Movement at its time. The language and the meaning of architecture are the reflections of cultural, environmental and traditional values. Thus, these values are essential, while establishing a construction, which is functional, and the freeing of values of spirit from individual restrictions can have consequences. The function is the way of expressing desirable living conditions of the users in physical forms; moreover, if the built environment is not suitable for the everyday life of the users, people might eventually attempt to change it to a more convenient. Therefore, the transformation in building design is associated with the Modern Movement, which created changes in traditional forms, established different outcomes as well as problems in the perception of expression of the Modern Movement language.

As Salingaros (2006:256) asserts, even though the minimalist modernism was triumphant in its own terms with the clearly defined geometrical expression, which is related to the strong form language, it was ignoring or not trying to accommodate with the human patterns. Ultimately, it was incompatible with the pattern language that Alexander identified. He as well states that the approach in 20th century architecture was replacing or refusing the pattern language, which was the result of evolutionary development. As Richards (1940:126) states, people are more likely to admire what is already familiar to them and that they can classify in their own circumstances. Therefore, containing ornaments and traditional plan schemas would help people to classify easier. Furthermore, it is still possible to see the pattern language in the form of ornament or in the form of plan schemas in the Modern Movement, which demonstrates that the Modern Movement did not deny all modes of traditions or culture, while it was trying to express the design in a modernist form language in its different dialects.

Perception of the Modern Movement as Cultural Heritage

When the Modern Movement started to be seen in the architectural sphere, the attitude towards this movement was detracting and not affirmative among some of the critics. The buildings of the Modern Movement were accused of being bleak, austere and uniform. During this period, Goldman and Salatsch building of Adolf Loos was one of those structures, which captured most of the critiques. According to Frampton (1992:91), the cartoon which was published in 1911 suggested that the façade of the building was not that different from a manhole cover on the street. Furthermore, as it has been asserted by Whalen (2007:166), due to not carrying ornamentation on top of the windows, the emperor allegedly stated that the building had no eyebrows. Moreover, Schaukal, who is one of the allies and supporters of Loos, wrote that constructing a façade which is sober, unadorned and naked like this building requires courage. Therefore, even from the beginning, the approach towards the Modern Movement and the structures, which do not contain ornaments, were dubious by the critics as it was by the society.

As architect Smith (2012) states in the documentary *Coast Modern*, ninety percent of people do not want to live or relate themselves to a modernist house. [17] One of the reasons for that can be explained by the fact that people cannot establish the bond they need with modernist buildings or with the environment these buildings are in, which even affects the perception of it as cultural heritage when the buildings become older. Nevertheless, Modern Movement buildings can be considered as more human-friendly and more closely connected with the outside because of design and due to the usage of new materials and specifically the usage of a considerable amount of plate glass, which differs from traditional buildings. While traditional houses are more akin to shelters, which separate people from the outer world, the primary focus of the Modern Movement was expanding the inner space to the outside by large apertures, and the aim of the architects was creating a feeling of spacious design for the users. However, this characteristic of the Modern Movement only establishes an impact on the user of that building, but not on the people who are inhabiting in that environment. As a result, the artefacts of the Modern Movement do not have as much of an effect on the built environment they are situated.

One of the consequences of not affecting the built environment significantly is not having much of an impact on the life of the people who inhabit that environment. Therefore, it is possible to state that most buildings that are designed by Modern Movement criteria cannot easily establish a place in the collective memory of societies. However, this can be the result of the fact that the extant Modern Movement buildings do not contain age-value, because the Modern Movement only started to be seen in architecture in the early 20th century, and this factor should not be disregarded.

---

[17] Coast Modern is an independent documentary by directors Mike Bernard and Gavin Froome produced by Twofold Films in 2012.

However, it still influences its perception as cultural heritage in society; furthermore, it influences its preservation process.

Even though the public spaces and the solutions of the Modern Movement are successful, they do not have the effect of site-specificness or authenticity, which is as well crucial to the perception of people. As Campbell (2004:23) states, it is easy to create shapes and forms in architecture, but giving those shapes and forms any meaning is complicated. By not connecting shapes to any tradition, they would lack an essential frame of reference. Therefore, even though the architectural expression of the Modern Movement is considered successful, it creates a scarcity of associations with collective memory and traditions, and furthermore, it lacks the sense of reference. Therefore, it generates architecture which is possible to implement anywhere in the world, which interferes with the perception of beauty, since it is not designed for the society where it is implemented. As a result, the language that the Modern Movement uses loses its meaning, which could have assisted people in establishing a bond and place attachment. Moreover, most of the time, the first impression people are left with from the Modern Movement does not involve the feeling that it is a cultural heritage.

As Rampley (2012:6) states, the difference between heritage and history lies in the fact that the former negotiates a relation to the past, primarily through reliance on reified symbols of the past. One of the ways to establish this relationship is through the surface. Le Corbusier (1931:26), who is one of the pioneers of the Modern Movement, states that especially the surface in architectural objects gives individuality to the mass. However, when the surfaces of this movement are evaluated, the sensation they give is not about individuality but more an expression of universality. In that regard, it can be asserted that the Modern Movement has achieved the aim that it was focusing on; however, it has established a feeling in society that the heritage of this movement does not have the memento value, which would help people to connect themselves to the constructions.

Even though the Modern Movement era represents a paucity of memento value, specialists incline to preserve the artefacts of this period. As Mörsch (1990:5) states, no time in history reflects the period by its architecture. Therefore, the artefacts of the Modern Movement as well have the importance of historical documents. In some cases, iconic architectural objects of the Modern Movement have been granted the label of World Heritage even only ten years after they were constructed. The architecture and ideology established by the Modern Movement is, to some extent, a social reform, which secures the evaluation of its objects as cultural heritage by the heritage community, thereby emphasizing their importance. Moreover, they contain a significant architectural value. However, society does not regard this style as heritage in most cases. According to Hoffman (2005:38), Charles Jencks states that hybridity of the form allows for different kind of receptions, and furthermore, it extends the language of architecture by speaking to the elite and at the same time to ordinary people. However, the language of the Modern Movement does not contain this hybridity. Therefore, as this study suggests, it does not speak to non-experts, and furthermore, it does not give the impression to ordinary people that it is worth

preserving. As a result, the process of preserving modern heritage becomes contentious due to the language it uses.

Same Language, Different Dialects

In the development process of the Modern Movement, it was not expressed or understood the same way all around the world. As Bony (2010:84) states, modern architecture had been predominantly national at the beginning, but in the late 1920s, primarily with the effect of International Congresses of Modern Architects (CIAM), which was held in Switzerland in 1928, it began to become international. Even though all the different variations of the Modern Movement had one common aim, which was establishing architecture that is functional and away from eclecticism, there were still diverse approaches after this date, and the dominant influence of modern discourse can be still identified in these approaches. Therefore, the language in the modern architecture developed different dialects.

All these different dialects, which arose in this era, emerged with the idea that the values they represent are threatened by the claims of universality and standardisation. However, modern architecture was introduced as a part of a schema of social and cultural renewal; therefore, it can be expected that in different cultures, it had different reflections. Different cultures and nations develop and improve individual forms of architecture, according to their ability and their cultural memories that they have inherited from the earlier generations. Therefore, it is possible to expect that due to the traditions, coming from vernacular architecture and point of view on the ideal beauty, it can vary. Even the expression of the same architectural style can differ related to the language that the architects use, which is connected to the traditional patterns and the conditions of the environment, which was not expected in the expression of the Modern Movement.

Within the 20th century architectural theory, there were various approaches shaped due to the distinction between modernity versus tradition as well as international versus national styles. As Çaylan (2000:2) states, “the urge to preserve the cultural and local diversities threatened by the industrial culture manifested itself either as a reconsideration of the national, traditional and historical modes of a building or as a critical architectural language formed by sensitivity towards the physical, social and environmental factors of a specific locality”. However, early modernist critics, including Le Corbusier, Giedion, Behrendt and Mumford, introduced sensitivity to local and regional context as a particular characteristic of any successful modernist practice, which established various expressions such as existence minimum and regionalism.

Existence Minimum is as well called new objectivity, and it was primarily located in German-speaking Europe in the 1920s and 1930s. As Frampton (1992:167) states, after the First World War, the expressionist movement in Eastern Europe gained momentum, and as a response, a new architectural style, which emphasised functionality and socialism, started to take its place in the Western Europe. New objectivity was pioneered by architects, such as Le Corbusier, Ludwig Mies van de

Rohe, Walter Gropius and Bruno Taut. Due to the impact of Bauhaus and its projects, this approach became an integral part of the Modern Movement. The essential characteristics of this approach contained geometrical forms and creating the architecture, which is minimalist, but at the same time functional. It was mostly focused on producing structures, which were cheap, efficient and for the public. Therefore, most of the examples in this expression were in residential areas and housing estates. This approach as well created the foundations of the international style, which was established in the United States, with the characteristics of simplistic and minimalist design.

Another expression of the modernist era is Regionalism, which is the expression that was articulated the most in this period. The reason for this is related to the fact that in the Modern Movement, the primary emphasis has always been on the universal principles. In that regard, the approach of regionalism is different, because it had the sensitivity to local culture, topography, climate, appropriate technology and natural environment, but at the same time, it potentially resolved those issues, and it did not contradict to the rationalist principles of the modern architecture. The main discourse of regionalism was creating the connection between past and present while being respectful towards the local identity, meanwhile using rectangular forms and establishing functionalistic, but at the same time, site-specific structures.

Apart from the different expressions that the modernist era contained, the Modern Movement had different reflections in different parts of the world. The formal language that was introduced by it was already familiar with the Mediterranean vernacular architecture, and local expressions by cubic volumes and flat terrace roofs. Therefore, the effect of the Modern Movement in this part of the world outspread easily. As Curtis (1991:96) states, seeking out a common ground between a modernist simplification and famous roots, Greek architects experimented with local variations of modern architecture by the root of the formal language in the social habits, spatial patterns and landscapes of their own country, which succeeded them to assimilate modern architecture during the early 20th century. Moreover, in Scandinavia, modern architecture constitutes another variation that was shaped by the combination of universal and rational principles with the local traditional culture of architecture. It was inspired by national myths, local vernacular architecture and the classic works of the previous generation of architects. In that regard, it is possible to identify the Modern Movement, which was created in this region, with its usage of local building materials and response towards climatic and topographic properties of the building site. According to Özer (1993:231), the integration of collective memory, local landscape and traditional culture with international modern language were as well achieved within the Catalan school, and it offered the potentiality for the formulation of a new architecture, which would be a viable alternative for the international style.

2.3.1 Different Expressions of the Modern Movement

The definition of modernism in the global context appeared after the 19th century as a specific form of living, which is not related to the old beliefs, since traditional and old meant pre-industrial and backward. This belief as well had a reflection in architecture in the early 20th century. Le Corbusier (1931:7) stated that "Steel and concrete have brought new conquests, which are the index of a greater capacity for construction, and of an architecture in which the old codes have been overturned", which prompted the architectural expression of the Modern Movement to encounter accusations regarding its disconnection to the culture and the past. However, the implementation of principles of this style into every culture and every society was not easy. Nations develop and improve individual forms of architecture, according to their ability and their cultural memories that they have inherited from the earlier generations. Even though there are similarities in the expression of the same architectural movements, there are differences due to the traditions coming from vernacular architecture. As Habermas (1987:3) explains "the meaning of the term modern, modern is a consciousness of an epoch that relates itself to the past, to view itself as a result of a transition from the old to the new". Therefore, it should still be possible to trace the effects of old traditions, furthermore, the continuity while analysing the modern and modernism.

However, the discourse of the Modern Movement and its attempts at establishing an international style resulted in the approach to the indications of environmental disintegration and discontinuity. Albeit architecture itself tends to have its own continuity, and most of the architectural styles were born as a reaction to the style, which comes before itself. Moreover, except the fact that architecture is a reaction to the style it comes before, it as well appears both as a tool and as a field for ideological and/or social formations of the socio-political context, as Ergut (1999:38) states. In that regard, for understanding the contextual developments of architectural formation, specifically the Modern Movement, it needs to be assessed at the specific time, place and conditions. Therefore, if a parameter, such as the place, is subject to change, the results and the way architectural formation has emerged might result differently.

For that reason, two different cities from different cultural backgrounds, furthermore, from different geographical conditions, which were influenced by the discourse of the Modern Movement, were chosen for the analysis. However, in order to understand the conditions and the origin of the style, the theoretical framework is explained by a brief analysis of the Modern Movement in Berlin. According to the UNESCO nomination file, the social housing settlements, which were built in Berlin during 1920s, unite all the positive achievements of the early modernism, and they accommodate a symbolic value in the discourse of the history of 20th century architecture: along with Bauhaus and the buildings of Neues Frankfurt, as exemplary

achievements of modernist architecture and urban development.[18] Therefore, starting this research with this city has facilitated the research analysis of the characteristics of the movement; moreover, it helped to understand how it changed its expression in different regions. It is important to assert that the expression of the Modern Movement and the core reasons for the usage of this approach in Berlin was different from the other two cities. First of all, Berlin is the city, which can be named as the city where the movement was born. Therefore, it was not a way of expressing this approach with an interpreted dialect, but more about the creation of it. In that regard, the characteristics of the style in Berlin reflects less or even no cultural memory, but reflects the needs of the period.

Subsequently, Ankara and Kaunas are analysed, where it is possible, to see the differences in languages for expressing the same ideas and the same architectural styles in different dialects. The research evaluates the variety of stylistic approaches that were used in the 20th century's Modern Movement and compares the influence of culture on them. The research claims that even though the origins, objectives and the languages that are used in all the approaches are similar, there are differences between them due to the regions and cultural characteristics of the areas they have been implemented. Moreover, these different characteristics affect the perception as cultural heritage for the society, which lives in that environment.

Berlin: The Genesis

After the First World War, the sweeping changes in technology and society resulted in the approach, which involved the rejection in historicism, and the simplification of expression affected the new era. Even though the population growth in Berlin started in the middle of the 19th century, after the First World War in the 1920s, the growth had a boost, which ended with the residence of Berlin doubling their numbers. Hence, the need for social housing appeared. As it is stated on the website of the state of Berlin, at the time, public authorities focused on a model to abolish overcrowded tenement buildings.[19] In this period, the aim was establishing dwellings, which are public instead of private, social instead of speculative, comfortable instead of narrow, light instead of dark, airy instead of stifling and hygienic instead of unhealthy. Therefore, the focus was on constructing new estates which were cost-effective, and furthermore, which were providing a healthy dwelling for the society. As a result, a new style of architecture was established in Germany

[18] The Nomination file of UNESCO World Heritage list for Berlin Modernism Housing Estates: https://whc.unesco.org/en/list/1239/documents/.

[19] Official website of the State of Berlin: http://www.stadtentwicklung.berlin.de/denkmal/denkmale_in_berlin/en/weltkulturerbe/siedlungen/hintergrund.shtml [accessed: December, 2017].

with the combination of urbanism, architecture and landscape design with innovative technical solutions and house typologies (**Pic. 5.**).

Pic. 5. Collage of the Modern Movement buildings in Berlin

However, as it was stated in the *Nomination for Inscription on the UNESCO World Heritage List* book, Greater Berlin with its spacious undeveloped properties became the site of experiments in developing modern flats for people.[20] Therefore, an attempt of establishing this new approach in architecture was based more on creating a guideline for social housing in an extensive area rather than constructing an existing fabric. As a result, it is possible to state that the authenticity and the architectural value of these developments did not have a significant impact on the environment and the society it was implemented, but it had more impact on the society who lived in these buildings.

Around the same period in Germany, the Heimatschutzbewegung movement emerged as well, which was more based on a conservative artistic design and had more emphasis on preserving cultural heritage and regional elements.[21] As it was stated by Umbach and Huppauf (2005:8), Heimat style contained vernacular within

[20] Nomination for Inscription on the UNESCO World Heritage List, p. 2, 2008, https://whc.unesco.org/uploads/nominations/1239.pdf [accessed: January, 2018].

[21] Nomination for Inscription on the UNESCO World Heritage List, p. 3, 2008 https://whc.unesco.org/uploads/nominations/1239.pdf [accessed: January, 2018].

the framework of modernity, instead of positioning as modernity's polar opposite. Unlike the historism, which was seen in the world in the 19th century architecture, Heimat style tried to reinterpret traditional techniques and regional design languages in a clean and modern way without embracing the ornaments. However, with the impact of political situation at that time and the usage of national elements as in rejection of anything foreign changed the positive aspects of style towards a negative understanding. Therefore, the relationship of this style with modernity and the aim of establishing an international style mismatched with the approach. As a result, the concept of new architecture in Germany is guided more by the influence of Bauhaus and its ideals.

In the manifesto that Bauhaus published in 1919, it claimed that:

The ultimate goal of all art is the building. The ornamentation of the building was once the main purpose of the visual arts, and they were considered indispensable parts of the great building. Today, they exist in complacent isolation, from which they can only be salvaged by the purposeful and cooperative endeavours of all artisans. Architects, painters and sculptors must learn a new way of seeing and understanding the composite character of the building, both as a totality and regarding its parts (Droste, 2002:18).

The Bauhaus school started with the rhetoric that had a teaching model of having parallel tuition from both an artist and a craftsman. Furthermore, it combined this approach with building design. The intention of this tuition was integrating theoretical teaching form with practical workshop training, which was focused on the functionality of the building, which did not reflect any class, and furthermore, it aimed directly at the modern society and its needs, although the aim of developing better conditions for the society lost its content, when the architecture started not to reflect the society. As Hahn (2015:6) states, the avant-garde architecture of Bauhaus that developed in the twenties had monotone box-like constructions and soulless housing estates. Therefore, in the architectural sphere, the architecture that Bauhaus developed has not been always appreciated by everyone. Furthermore, in most cases, it might not be appreciated in contemporary understanding, especially by the society.

However, when the Bauhaus movement was first seen in Berlin, it generated a different lifestyle, and it changed the image of the city by the rules it stated and practised. It was concerned with creating a new architectural form while trying to establish a new social reform, at the same time, to make society more open and transparent. As Moholy-Nagy (1975:21) states, Bauhaus was able to produce designs, which had an influence not only on industrial production and architecture but in shaping daily life as well. Aside from the impact on architectural objects, it as well affected the furniture, textiles, painting, photography and other fields, which were directly connected with design. As a result, when assessing the effect of Bauhaus in history, it is important to consider its other dimensions and not just evaluate it by its reflection on architecture. Moreover, the impact of Bauhaus cannot only be based in Germany, but in other parts of the world as well. Even though the Bauhaus school existed only for a short period of 14 years, its legacy can still be traced in present

times, and its influence can be seen in other cities, which were trying to establish their own identities in the interwar period.

The Bauhaus Dessau building was added to the list of historical monuments in 1972 by the German Democratic Republic; it was added to the world heritage list in 1996. Therefore, the protection of the structure started less than 40 years after it was constructed, which is a rapid process for a heritage building. In that regard, it is possible to state that the early management of its protection and the emergence of the awareness regarding the value of the building by the institutions and the society, determined a positive outcome for its present status.

Ankara

When the architectural practice of the Republican period in Turkey is being analysed, it is essential to note that at that period, a newly settled country was trying to establish a new cultural identity, which was more peculiar than the Ottoman Empire; therefore, the implementation of Modern Movement discourses in architecture contained political aspects. Due to fighting against Italian, French and British forces in the War of Independence, German-speaking allies, such as Germany and Austria, were chosen as a model for new reforms to constitute a country, which is more western and modern when the country that was first settled. Therefore, these reasons should not be disregarded in the analysis process.

After the First World War, the ideas about establishing a national state became essential in international politics, which had a reflection in Turkey, due to the fall of the Ottoman Empire. As Bozdoğan (2001:122) states, at the time of Republican period, the architectural discourse of the Modern Movement was appropriate to the discourse of the government, because the primary intention of that era was establishing a country, which would detach itself from the Ottoman and Islamic period, and furthermore, it would have a westernised and modern outlook. However, while attempting to be modern and of western society, the government still wanted to emphasise nationalism. Furthermore, as Nalbantoğlu (1993:66) states, the nation-building process in the Turkish Republic involved the nationalist praxis by the faith in the process of modernisation, where the dominant ideology was a nationalistic idealism that was supported by the process of modernisation. As a result, these political views triggered the changes in lifestyles and architecture in 1920s Turkey.

Even though Turkey did not experience industrialisation and the problems established in the lifestyles of people in this period, which motivated the idea of the Modern Movement and the garden cities in the western societies, the new Turkish state inclined these ideas. The aim of the Republic was living as an advanced and civilised nation amid contemporary civilisations and specifically like the western world. However, as Robins (1996:62) asserts, in some ways, the adapted modernisation established illusionary modernity that contained a paucity for the real dynamism of modernity in Turkey. In architecture, this modernity omitted the problems of residents and did not reflect the culture it implemented in the first years of the state. According to Akcan (2012:51), especially in the process of the city planning of Ankara, Turkish bureaucrats rejected occasional domesticating gestures

and insisted on designs, which were more European looking, rather than the traditional looking. However, in the end, the way the Modern Movement was implemented or interpreted in Turkey during the first years of the Republic still had the traces of tradition, which is influenced by a nationalised approach. According to Robins (1996:67), the attempt of creating a new cultural identity witnessed a cultural tension, stemming from the inherent cultural polarity between the desire of being modern while trying to keep a distinct identity, which caused the presence of dichotomies between national and international, traditional and the modern or eastern and western attributes in Turkey. Consequently, these different approaches established a bipolar environment for architectural discourse in Ankara and the rest of the country during 1920s (**Pic. 6.**).

Pic. 6. Collage of the Modern Movement buildings in Ankara

During this period, there were different suggestions created by various architects, such as promoting the modernist reconstruction of the traditional Turkish houses in a typological method or emphasising the sensitivity of modern architecture and stressing the consideration of the climate inputs (**Pic. 7.**). The main formation of Turkish houses seemed suitable for the Republican architecture with the reason of carrying national expressions; moreover, in its nature, it had the characteristics of being rational, functional and simple, which matched with the modernist attitude (The term Turkish house designates a particular vernacular type which exists in the vast territories of the former Ottoman Empire from the Balkans to the Arabic Peninsula.

However, substantial variations in size and configuration are possible in different regions.).

Pic. 7. A Modern Movement House designed by Ilhami Somersan in Ankara

There are some sketches of Turkish houses in Le Corbusier's travel notes called *Journey to the East* from 1911, where he defined them as architectural masterpieces (Jeanneret, 1987). Bozdoğan (1988:40) argues that Le Corbusier's analysis and observations of this journey, such as greenery, the effect of light and air, had an impact on his modernist preoccupations, and he did not just focus on Orientalism, but he appreciated the architecture in this journey as well (**Pic. 8.**).

Pic. 8. Le Corbusier's sketches of a Turkish house

However, the exclusively practised Modern Movement rules matched with the progressive ideals of the state, and furthermore, even applied a housing project, which was designed for Germany, to a site in Turkey that was discussed in a newspaper in 1935.[22] Moreover, Austrian architects who actively practising in Turkey at the time, such as Ernst Egli, Clemens Holzmeister, and Turkish architects who studied in Germany, had the tendency to implement architecture that was influenced by Bauhaus cubic architecture (**Pic. 9.**).

Pic. 9. Ismet Paşa Crafts School for Girls, Archive of Salt Institute

During this period, all these architects designed houses with a modernistic agenda, which includes horizontal windows, white walls, flat roofs, functionalist standards and dissolution between inside and outside the boundaries (**Chart 7.**).

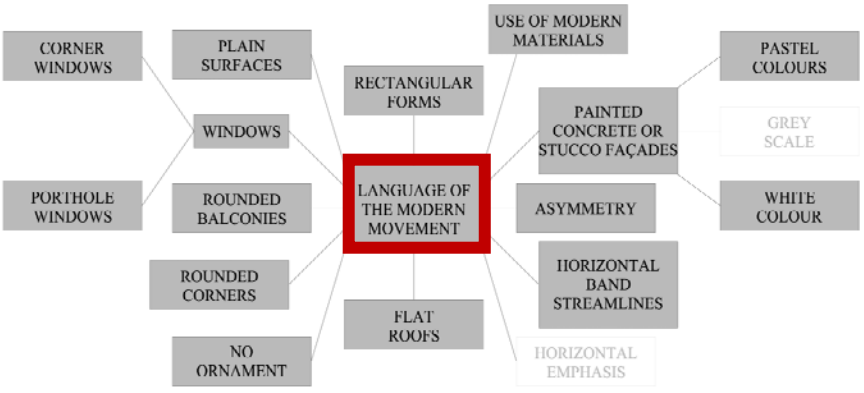
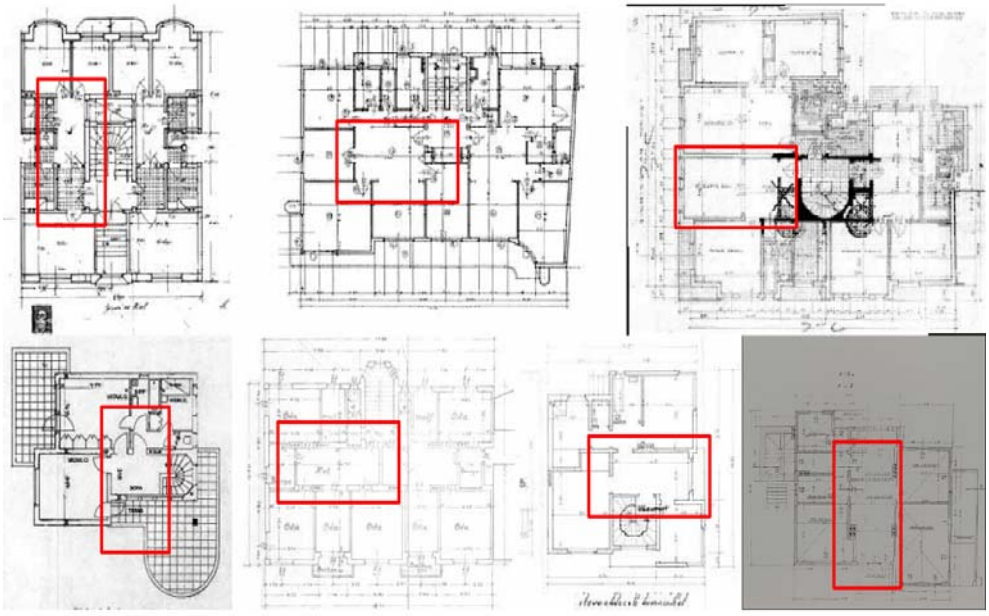


Chart 7. Characteristics of the language of the Modern Movement in Ankara

[22] The article "Ankara'nın 5 yıllık planı" was published on *Ulus Gazetesi*, Turkey, 1935.

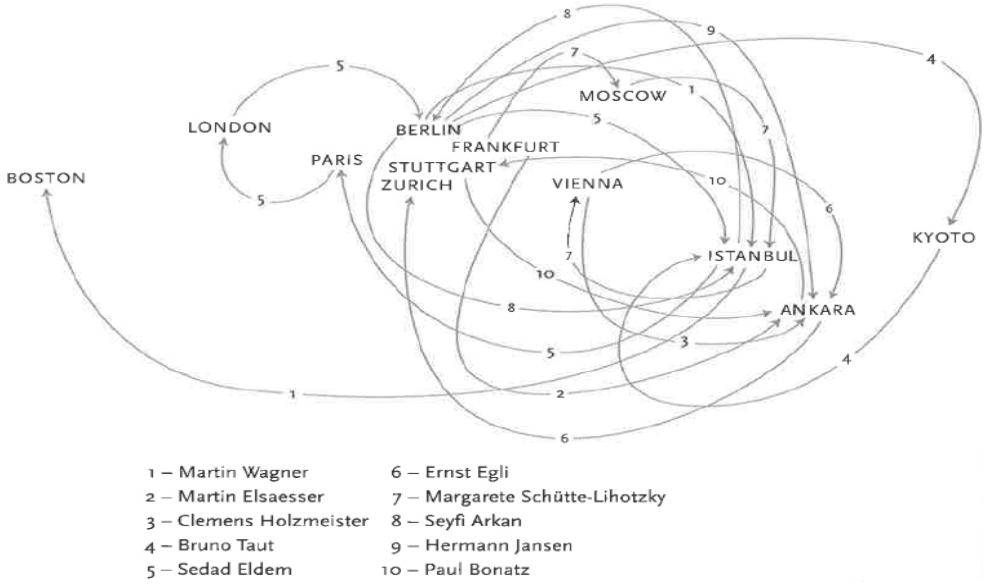
However, even in these modernistic houses, there was still a contrast regarding open-plan schemas due to the traditional use of houses by Turkish people. Furthermore, there was a tendency to separate and even hide the private spaces or rooms where the daily life is shaping from the social gathering areas. In various examples, it is possible to detect the existence of 'sofas' which are one of the main elements in Turkish house planning (**Pic. 10**). Therefore, the reflection of tradition and culture was still conspicuous in the plan schemas of these designs. As a result of all these attempts and different approaches, Turkish Republican architecture was born with the impact of Modernism, where socialist characteristics of Modernism such as efficiency, functionality and affordability played the role of symbolising the power of the state.



Pic. 10. Various examples of plan schemas that contain 'sofa' from the Modern Movement period

The Republican architecture can be divided into two main periods. The first period is called The First National Architectural Movement, which emerged around the 1910s and continued until 1930s. The main discourse of this style was removing the eclectic elements in architecture, specifically the elements emanate from the Western architectural styles and using the essential features of Ottoman and Turkish architecture (Sözen, Tanyeli, 2007:43). However, after the settlement of the Turkish Republic, the focus moved more on creating the national style, which consists of adopting Turkish motifs rather than Ottoman ones, since the Ottoman period represented backwardness to the new country. Nevertheless, this architectural style was applied mostly by the Turkish architects who had their studies abroad or by Turkish architects who studied in the existing two universities in Istanbul (Sözen,

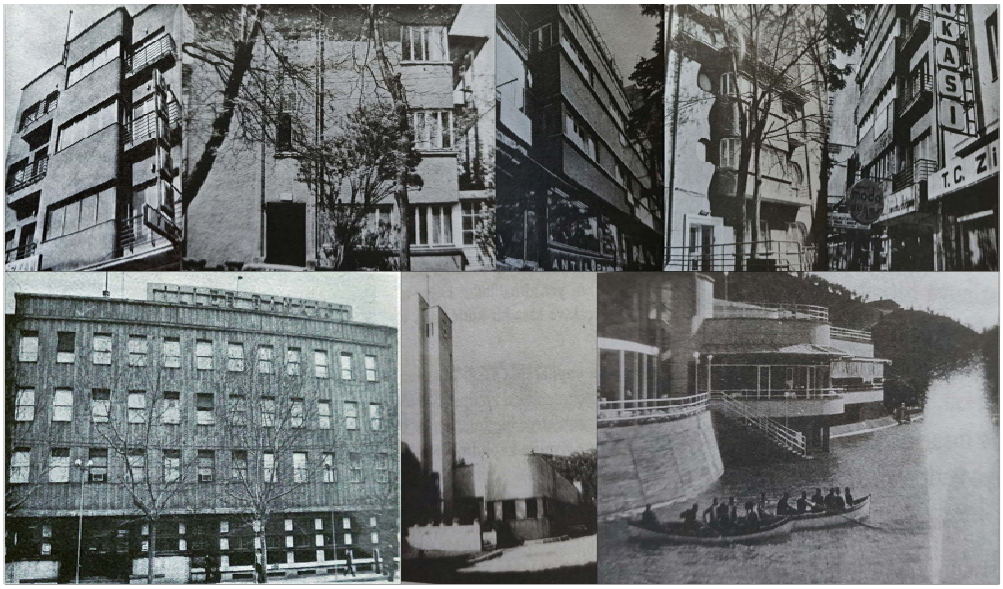
1996:17). According to Akcan (2002:3), there were a few hundred professionals working and connecting only Germany and Turkey in the first half of the 20th century (**Pic. 11.**). Therefore, the Turkish and foreign architects as well as urban planners, who migrated or travelled between these different regions, established interaction and influenced the scope of architecture in Turkey in the early 20th century. The foreign architects who were practising in Turkey in this period mostly applied the Modern Movement expression in their designs. Regarding the characteristics of the Modern Movement with flat roofs and surfaces, horizontal windows, terraces and continuous balconies or the windowsills at the façades made this style to be called the cubic architecture in Turkey. Most of the buildings that erected in this period were administrative and public buildings rather than residential ones, although there are examples of residential buildings as well. However, as Bozdoğan (1995:172) asserts, modern forms or cubic architecture as the international style that came to be designated in Turkish were rejected with increasing nationalist fervour in the late 1930s, as the expressions of an alienated, cosmopolitan society. As a result, the second period of the Republican architecture started.



Pic. 11. Interaction and paths of the immigrating and travelling architects are demonstrated in a stylised diagram in the book of Esra Akcan

The second period in the Republican architecture is called The Second National Architectural Movement, which can be tracked between 1939 to 1950s (Hasol, 1999:40). In this period, the economy of the country encountered complications and inconvenience by the conditions, which emerged due to the impact of the Second World War. During this era, importing materials became problematic, and nationalist tendencies arose, which was reflected in the architecture. In that regard, in this second architectural movement in Turkey, the impact of the Modern Movement decreased.

Turkish architecture at the beginning of the 20th century was highly influenced by the Modern Movement and the first examples of the modern architecture in Turkey were constructed in Ankara, which was the new capital of the Turkish Republic. Today, it is possible to detect buildings, which contain the characteristics of both of these architectural periods in Ankara heretofore; however, the existence of them is deteriorating due to the legitimation issues (**Pic. 12.**).



Pic. 12. Demolished Modern Movement structures of Ankara (photographs are taken from the book of İnci Aslanoğlu)

According to Birol (2010:143), the heritage of the Modern Movement in Turkey was under severe danger until 1983, as these buildings were not accepted as the cultural heritage by the laws regarding their age value. However, even though the laws have changed more than three decades ago, as stated by Madran (2006:1), the approach towards cultural heritage and the perception of it is still limited by monuments and specifically mosques in Turkey by both local administration units and the public. Therefore, the appreciation and the understanding of these buildings have paucity in Turkey even in the contemporary period, which often results in the loss of this heritage.

Kaunas[23]

Simultaneously with Ankara, in the interwar period, Kaunas became the capital of Lithuania. However, in Kaunas, this period was limited, lasting between 1918 and 1940, due to the multiple invasion and occupation of the capital Vilnius, and Lithuanian authorities decided to transfer the government to this city. Transferring the capital to Kaunas had an impact on the town, which initiated an immense amount of constructional developments. As it has been defined in UNESCO's tentative list description, Kaunas had been a modest Imperial Russian garrison city, and it suddenly acquired new importance with its new status as a capital. Therefore, this provided an impulse to accelerate its integration into the political, social and cultural context of interwar Europe through material and non-material forms, such as architecture, diplomacy, culture and education. As Jankeviciute (2017:9) states, in this period, civil servants and professionals such as doctors, lawyers, artists and politicians started to reside in the city, which created the need for the new headquarters of institutions and housing for their employees, and this resulted in the construction of all the new government buildings as well as the residential buildings in Kaunas. At the time, the dominant architectural style in the world was the Modern Movement; therefore, Kaunas adopted the expression of it in its newly built structures; however, it applied its own interpretations (**Chart 8.**).

[23] This subchapter contains information from the articles of the author with the details below:

Doğan, H.A. (2019). Assessment of the Perception of Cultural Heritage as an Adaptive Re-use and Sustainable Development Strategy: Case Study of Kaunas, Lithuania. *Journal of Cultural Heritage and Sustainable Development*, 9(3), 430–443.

Doğan, H.A. (2018). Is Ornament A Crime: Ornament Usage in The Modern Movement and Its Impact on Society's Perception, *Journal of Architecture and Life*, 3(1), 113–127.

Doğan, H.A. (2018). Impact of Memento Value on the Perception of Cultural Heritage: Case Study of the Modern Movement and the Dialect of Kaunas, *Journal of Science-Future of Lithuania*, 10.

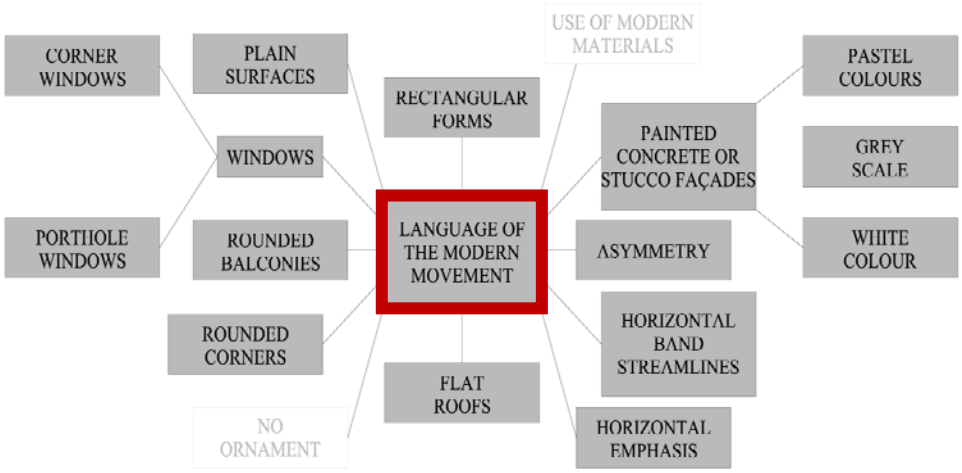
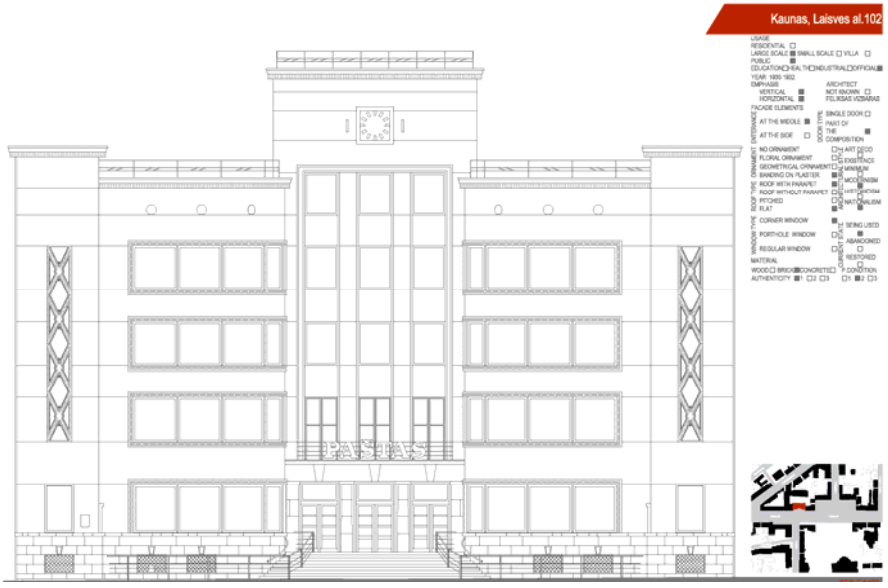


Chart 8. Characteristics of the language of the Modern Movement in Kaunas

As Petrulis (2014:209) states, even though Kaunas was the capital at the time, the temporary nature of the process has never been forgotten, and Kaunas established its own expression, which was a combination of the Modern Movement and national style. Losing the capital and part of the territory greatly inspired the need to strengthen national identity in various forms, and architecture was no exception. In this period, the most straightforward model for transforming the political message was implementing ornamentation taken from traditional Lithuanian textile or wood carving by utilising plaster. Thus, the dispute between conservative and modern architecture that characterised the first half of the 20th century in Lithuania was often accompanied by rhetoric reminiscent of folk traditions. Though the search for Lithuanian spirit in professional masonry construction is not a predominant phenomenon, ornamental details (and not only those created in the Lithuanian national style), which can be associated with art deco today, remained important features of Kaunas architecture throughout the entire independence period. Even in the late 1930s, a young architect Bielinskis (1937:62) was convinced that in its form, ornamentation must explain the significance and purpose of the entire building. According to him, it must express in miniature what the entire building signifies in all of its grandeur. In that regard, the interpretation of Kaunas differed from the other Modern Movement expressions, since most of the buildings, which were constructed in the world with the influence of the Modern Movement, encountered difficulties in integrating into their environment and the existing cultural elements, although Kaunas Modernism was not subject to such problems. Kaunas Modernism incorporated rather than contradicted traditional styles and features and adapted to the urban fabric due to its close connection to the vernacular language of Lithuania (**Pic. 13.**).

Pic. 13. Collage of the Modern Movement buildings in Kaunas

According to Maciuika (1999:24), even though there are regional differences across the villages of Lithuania, the vernacular architecture had the tendency to build its structures oriented towards the sun, defend against the wind, include handcrafted wooden ornaments of plants, the sun and other natural motifs. Therefore, the dialect of the Modern Movement in Kaunas as well implemented these tendencies, and it established a different interpretation, which is respectful towards the environment and kept the continuity of the traditional architecture. Except for the regionalist approaches in the Modern Movement where the architects are emphasising the use of local materials, in the example of Kaunas, it is possible to see the ornaments, which are the traces of cultural memory of the society in a modernist structure, and it is possible to state that these characteristics of expression in Kaunas established their own language in the Modern Movement era. One of the convincing examples of modernist architecture and the dialect of Kaunas is the central post office building (**Pic. 14.**), which was designed in 1930 by Feliksas Vizbaras. According to Vizbaras (1933:148), the design philosophy of the construction is closely connected with the vernacular architecture by its entrance, which resembles the porch of traditional houses, and the central hall, which is representing the rooms of the houses. In the particular case of the post office, it is interesting that the architect explains the national character of the building in terms of ornamentation as well as by using arguments about traditional functional structure. Such an approach shows that the application of national ideas can be more complicated than simple ornament.



Pic. 14. Drawing of Kaunas Post office from the inventory

It can be stated that the expression in Kaunas originates from the fact that a remarkable number of buildings constructed in the interwar period have the impact of individuality and authenticity. When buildings with the expression of Modernism were erected in Berlin, most of them were in the form of social housing; therefore, the sensitivity of the users was disregarded. As a result, the architectural style, which had its emphasis on the users and functionality for the users failed to fulfil the real needs, and it established a language, which was an average interpretation that can accommodate various people. This was one of the essentialities at the time, related to the need for an extensive number of dwellings because of the World War, and furthermore, to the problems caused by the major immigration to the city from the countryside. As a result, the architecture was economically feasible, but generally, it did not pay attention to the peculiarities of the location.

Kaunas as well experienced the impact of the war and the building boost related to turning a small town into the capital. However, architects still succeeded to design in a way which managed to be site-specific. Moreover, the buildings which were constructed at the time were predominantly small-scale constructions rather than massive complexes, which could have provided the advantage of working directly with the architects. As Laurinaitis (2017) states, the new tendencies of modernism that spread through most of the Western World after World War I soon found their way into the young Republic of Lithuania. Local architects that were returning home after their studies in Western European universities brought back new architectural ideas and transformed them into a distinctive local form that was later named Kaunas

School of Architecture.[24] Therefore, even though most architects who produced artefacts in this period studied abroad, they had local roots, which established their knowledge as well as their sensitivity towards the cultural memory of the society in their designs. As a result, it is easy to trace the impact of memory on the surfaces of Kaunas, and furthermore, the buildings that were constructed reflected the identity without rupturing the past, which is affecting the perception of the society in the contemporary perspective as well.

As Petrulis (2014:216) states, the architectural language of the Modern Movement which was adopted in Kaunas was closely related to the mental aesthetic and construction understanding of Lithuania, and it was associated with the pragmatic improvement of constructions and the surroundings, rather than with a critical and rebellious position of a progressive architecture as other Modern Movement expressions. In that regard, the dialect of Kaunas contained more local tendencies and traditional expressions, which were even more regionalist when compared to other cities that were influenced by the Modern Movement (**Pic. 15.**).

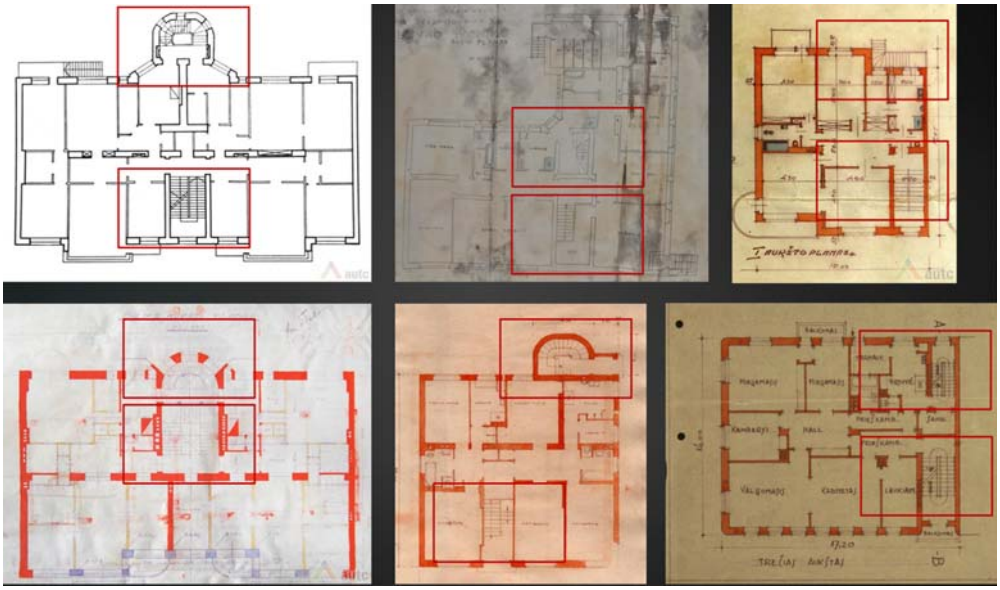
Pic. 15. Drawing of the House of Tulip from the inventory

Another intriguing characteristic of the expression of the Modern Movement in Kaunas is the use of material and construction techniques. When the materials and construction techniques in the Modern Movement are analysed, it is possible to state that the architects were innovative, tried different approaches and partially produced

[24] Reflections of modernism in the temporary capital of Lithuania, http://www.autc.lt/en/route/6 [accessed: April, 2017].

an experimental expression. Therefore, in some examples, architects even adopted approaches with the minimum use of materials, which contributed to pushing the structural limits. As a result, the buildings of this style became artefacts with a shorter lifespan. However, in Kaunas, architects determined to use bricks and masonry work constructions when they were designing the Modern Movement buildings. As a result, the buildings in Kaunas have more solid and durable masses.

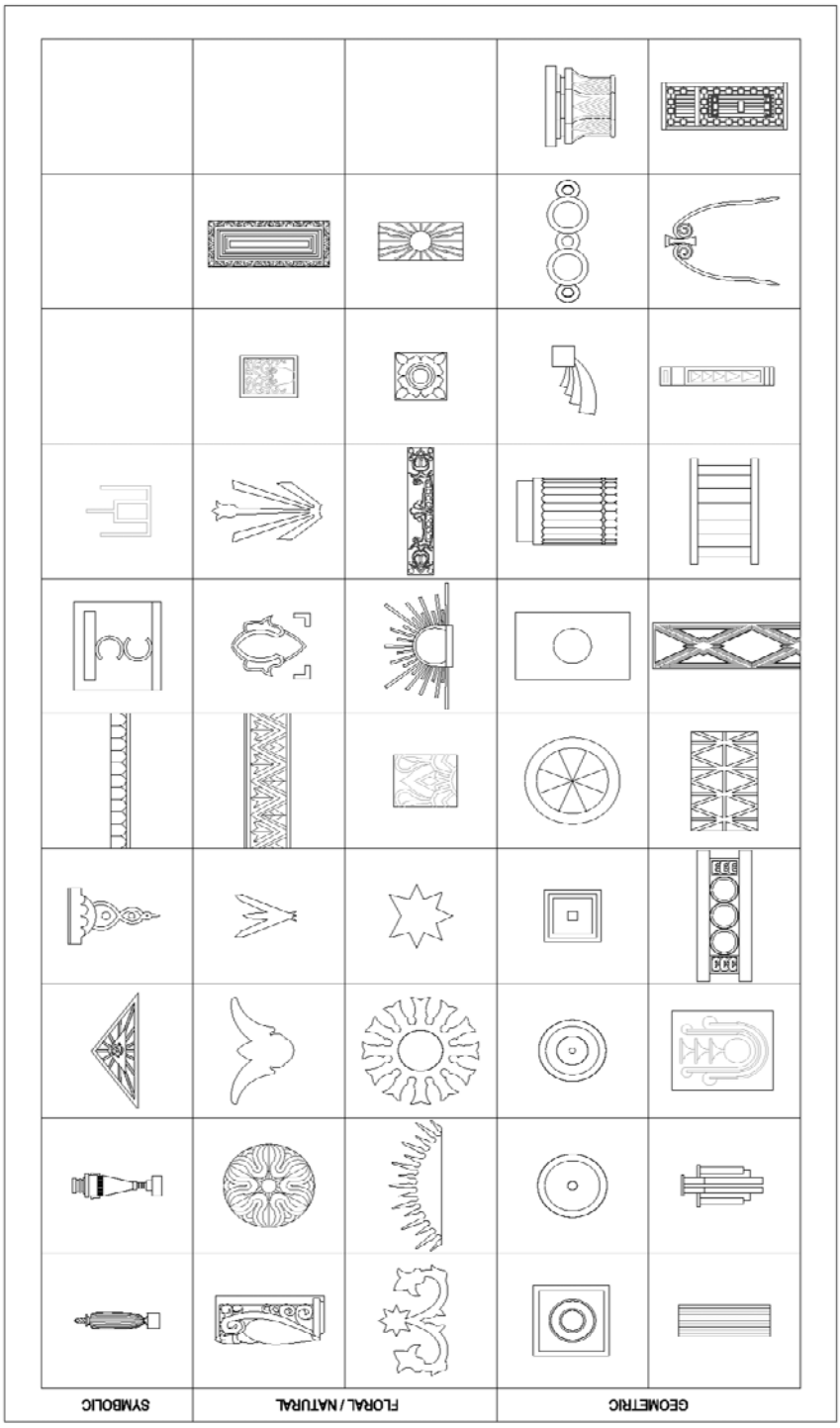
Furthermore, the buildings, which now are considered examples of "Kaunas modernism", were built increasingly rational in their inner layouts and perspectives and hygienic standards and were adapted to the local conditions. Especially, the modernist forms in private constructions were first employed by the owners of higher economic class, and while adapting new types of floor plans, the most lavish examples of apartment buildings had elements that were used from the 19th century onwards, such as the separate stairwells for servants (**Pic. 16.**).



Pic. 16. Various examples of plan schemas, which contain 'servant staircases' from the Modern Movement period

According to the inventory, prepared by measuring and drawing, the buildings in Kaunas (some of different unique structures of Kaunas can be found in the Annexe I section of this research) and the ornaments, which were implemented on the façades, have different shapes and forms, such as floral, geometric or symbolic. However, most of the ornaments embodied the forms of cultural motifs and elements (**Table 2.**).

Table 2. Inventory that demonstrates the different ornaments used in Kaunas



As Alexander (1977:1149) states, the connections and transitions are the best places to implement ornaments, because it is possible to have an intermediate range of scales, and a twilight zone, where it will not manage to scale of its own accord. Therefore, in this range of scales, the implementation of ornament can fill the gap. Furthermore, these places are situated in a position where different materials and objects meet. Thus, these places as well need to be connected. The described characteristic can be captured on the façades of Kaunas, specifically at the edges where the façade connects with the roof eaves (**Pic. 17., Pic. 18.**).

Pic. 17. Building on Laisves Avenue, Number 9

Pic. 18. Building on Laisves Avenue, Number 11

Moreover, Alexander indicates that the use of ornament is the eye of a significant gap in the continuum. Therefore, ornaments can be situated at different places such as centres or gaps between windows or doors for achieving continuity and establishing the emphasis in these locations (**Pic. 19., Pic. 20.**). In Kaunas, it is possible to observe all these characteristics that Alexander identified regarding ornaments, and furthermore, in some examples, it is possible to detect ornaments, which contain art deco features.

Pic. 19. Building on Vaidilutes Street, Number 3

Pic. 20. Building on Mickeviciaus Street, Number 29

The analysis of the architectural language in Kaunas suggests that the dialect of the Modern Movement in Kaunas was ahead of its time, and furthermore, it managed to develop an architectural expression in a Modern Movement era with characteristics of postmodern architecture such as sensitivity towards the region and the environment where it is implemented. Therefore, it is possible to state that it had the first indications of postmodern architecture, which started to be seen in the world in the 1960s by the expression of cultural and regional elements on its façades. Due to these significant characteristics, the modernist heritage of Kaunas was accepted to the preliminary list of UNESCO in January 2017, and currently, it is still a nominee for the list of the World Heritage with an outstanding value it contains. Furthermore, it holds the European Heritage Label since 2015 due to the different dialect it had established during the interwar period of the world with an expression that includes the usage of ornaments as well as other elements, which are reflecting the culture. One of the reasons why Kaunas has an outstanding value is the density of the Modern Movement buildings, which is pretty high, especially in the city centre. Therefore, it creates most of the fabric in this area. Most of the time, Modern Movement buildings do not have a direct impact on the environment where they are constructed due to their design characteristics that are more aimed at the user of the structure. However, in Kaunas, the buildings of this era are generating the whole fabric of the city centre. The dialect of modernism in Kaunas has achieved a balance with the fabric of the city by establishing an aesthetic coherence, which is appreciated and accepted by the society in the contemporary world. However, the article, which was written by Petrulis (2016:27) in 2016, suggests that there was still a concern among the specialists regarding the foreseen conflicts, which might occur due to the gap between the official and private treatment of the value and the evaluation even in the recent past. Therefore, it is possible to state that the perception of the society in Kaunas regarding the interwar heritage is still changing and developing. However, the peculiarity of the Modernism in Kaunas with all the implication of cultural memory creates an impact on the perception of them as artefacts and makes it easier for the society to evaluate them as a cultural heritage.

While language is a way for people to express themselves with words, the language that the architecture uses to express itself is visual elements. The two main languages that the architecture applies are form language and pattern language. These languages establish an expression in architecture, and furthermore, they embody the environment. The form language is the language that the architecture expresses by architectural elements, and the pattern language is the language, which articulates by the cultural and regional elements. When architecture utilises both of these languages in a design, it establishes a valid architecture, and furthermore, primarily with the effect of the pattern language, it establishes a familiar environment for people.

People tend to feel familiar with places and buildings where they have memories or which are carrying symbols related to their own cultures. Furthermore, personalising and taking possession of the environment creates bonds with the cultural identity of people, which makes the environment comfortable for living. The perception of an object requires having some information about that object, since

perception is purposive and at the same time selective. Therefore, if an object does not contain any data, mental image or memory created previously, the perception of that object might be problematic. In that regard, it is comprehensible to use the patterns and symbols that people can associate with while expressing themselves in the environment.

One of the ways to use patterns and pattern language in architecture is the usage of ornaments. Even though it might seem as if ornaments are only for decoration and beautifying the façade, they have other properties that they are adding to the building, such as identifying, locating, attention guiding, establishing the proportion and organisation. However, even though ornaments have all these different properties that are adding to the architecture, there was a decrease in the usage of them in the Modern Movement by the primary discourse of the style. It is possible to state that this characteristic of the Modern Movement affects the perception of these buildings as artefacts and as cultural heritage, which creates complications in the process of their preservation as well. In that regard, it is crucial to understand how the language of the Modern Movement is perceived by the people and what is significant for them when they evaluate buildings as cultural heritage. Therefore, researching or applying strategies to these artefacts require the establishment of new tools and methods and different identification and selection criteria. When the cultural heritage of the Modern Movement is well expressed to the non-experts, the consequences, which were born by its paucity on perceived inherent and memento value, might be solved. Furthermore, it can assist the adaptive reuse process of these buildings, which would amend their continuity and, at the same time, help them to be inherited by the future generations.

3. EXTENSION OF LIFE AND MEMORIES: ADAPTIVE RE-USE

3.1. Adaptive Re-use: An Intervention to Cultural Heritage

Buildings may become abandoned for various reasons, such as changing in economic and industrial practices, demographic shifts (the original users might leave the buildings due to various reasons), increasing the cost of keeping the building in a good physical condition or maintenance or mostly because they are no longer suited to the original function, and a new use has not been identified. When this situation emerges, the building may require a new function, and the process of giving a new function to an existing building is called adaptive re-use. Adaptive re-use is one of the interventions that is implemented to a building when it lost its original function, and there is a need to assign a new function to it; therefore, it can continue its life. Furthermore, it helps to extend the lives of historical buildings, and at the same time, responds to contemporary needs. Moreover, adaptive re-use affects the environment by promoting the neighbourhood, it affects the economy by promoting tourism, and it helps recycling materials. It as well creates an impact on the cultural memory of the people. People tend to prefer living in environments, to which they can associate themselves or where they can see the reflection of their identities, which can affect the quality of life for people. In that regard, the adaptive re-use contains various constraints, which create an impact on people's lives in a direct way (**Chart 9.**).

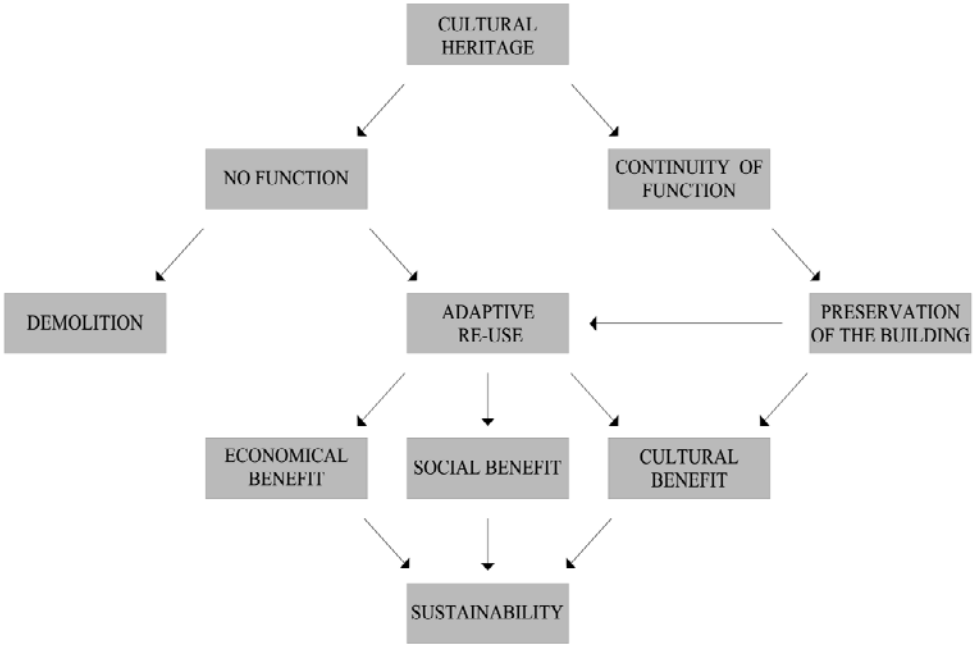


Chart 9. The notion of adaptive re-use

As Perez de Arce (2015:x) states, the interventions into buildings and changing their functions is not a new phenomenon, but previously it was done more pragmatically, in many cases, without heritage preservation as an intention. Therefore, the reason for the adoption of adaptive re-use in earlier periods was more about giving a new function to an existing building and considering the economic benefit of it. In the contemporary perspective, adaptive re-use is an essential strategy, which is applied for the well-being of the cultural heritage; however, it is possible to state that the focus is still not strictly on the preservation of the meaning or memories that are attached to that structure most of the time. Therefore, adaptive re-use can be a problematic issue in conservation practices, related to the fact that a new function, which is appointed to the cultural heritage, might have an adverse effect on the values that the artefact contains. According to Wang and Zeng (2010:1243), the new function, which is regarded to a heritage structure, should not contradict with the original themes and values. While considering a new function of a building, which has a heritage level, it is important not to disregard the values that are making it a heritage in the first place. Decision makers need to consider the compatibility with the original usage, reversibility of the interventions, which would not affect the value of the structure and, of course, the perception of the society. Therefore, the heritage value of the artefact is a quite critical aspect in consideration of the adaptive re-use, which as well has an impact on its perception. However, there are other aspects of this process as well. According to Suratkon (2010:2), the process of adaptive re-use of existing buildings is assessed based on the criteria, such as economic, environmental and social impacts. Preserving an abandoned building that might otherwise be demolished or using materials, which have been transported and produced previously, makes the process of adaptive re-use more convenient in the construction process. Furthermore, as Rypkema (1999:4) states, in the process of cultural heritage preservation, the labour, expertise and materials tend to be provided locally. Therefore, cultural heritage preservation is more likely to be locally based, and furthermore, it gives a boost to the local economy. However, in some cases, adaptive re-use might not be as economical as constructing a new building. Even though the economic impact of adaptive re-use is considered essential for the stakeholders and investors, especially for the society, the environmental and the social impact can be stated as more essential.

As Langston (2008:1712) states, older buildings can maintain attractive street spaces, add character to the streets and provide an image. The image that the buildings establish has an impact on the perception of the city. As Lynch (1960:1) states, “Every citizen has had long associations with some part of his city, and his image is soaked in memories and meanings”. Therefore, people need to attach memories and meaning for perceiving the city. This holds as well for the perception of cultural heritage, since it is not conceivable to isolate a building from the environment and its surroundings and the image, which was established by the memories of the society. According to Watson and Bentley (2007:13), historic buildings and neighbourhoods have the ability to connect residents to their roots, and furthermore, they can embed their collective memory and reflect their cultural identity as well as personal identity. Furthermore,

historic buildings can assure social life and establish the continuity of society and culture. Moreover, it can pass cultural identity to future generations. Therefore, the continuity of the society, which can be achieved by the adaptive re-use, can develop sustainability in the community, and furthermore, it can establish environmental sustainability as well. As Tveit et al. (2006:241) state, landscapes, which contain both past and present, can provide the integrity and quality to the communities who live in that environment. As a result, the sustainability of the historical environments can evoke strong images for the society and observers who are experiencing the place. Therefore, it is vital not to destroy the existing image of the environment by the new use, which is provided to the historical structures.

Impact of Adaptive Re-use on the Environment[25]

According to the Burra Charter of ICOMOS Australia, if a place is going to have a new use, it should be a compatible use for the characteristics of the place. Thus, the new use should be able to fulfil the function without damaging the historical fabric of the site. As Pearson and Sullivan (1999:311) suggest, compatible re-use should not damage a place or its cultural significance, whereas a most appropriate use should be compatible as well as reinforce and maximise the understanding of the cultural significance of a historical place and the environment. Therefore, cultural heritage and architecture should not just respond to the needs and the functions that people require, but it should involve cultural and relational aspects as well. As Manenti (2011:1104) states, when the typical features of places are preserved, it is not just their properties are highlighted, but the connection between them with the human being and their environments are emphasised as well. Therefore, when the strategy of adaptive re-use is implemented towards the cultural heritage artefacts, it helps to preserve one building as well as the urban fabric and the identity of environment and place. Buildings become more meaningful when they are appraised with the environment where they are, since there is an impact of environment on them. However, buildings influence the environment where they stand.

Buildings tend to reflect their distinct character on the environment, and they do help to provide a tangible connection to the past with their intangible elements. In that regard, the consideration of the impact of building on the environment and the society should not be omitted, and genius loci should not be disregarded in the decision-making process of adaptive re-use. However, the preservation of genius loci does not

---

[25] This subchapter contains information from the articles of the author with the details below:

Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas, Lithuania. *Journal of Cultural Heritage and Sustainable Development*, 9(3), 430–443.

necessarily mean keeping the façades of buildings for the well-being of the environment as in the approach of façadism.

As it has been stated in Venice Charter (1964), article 7: "A monument is inseparable from the history to which it bears witness and from the setting in which it occurs. The moving of all or part of a monument cannot be allowed except where the safeguarding of that monument demands it or where it is justified by the national or international interest of paramount importance"[26]. However, the concept of façadism has been adopted as an adaptive re-use technique in the world, even though it does not comply with the Venice Charter. According to the definition of Richards (1994: vii), façadism is the retention of the front or exterior of a building, even though the interior is completely gutted and replaced. Therefore, this approach only protects the façade but not the essence of the building; furthermore, it establishes a theatre décor rather than a historical environment. The façade of the buildings contains a meaning by itself, because it gives individuality to the structure, and it is the display of the design, which constitutes the first impression of the people who are living in that environment. In that regard, people are more likely to associate themselves with the façade, when they are in the environment rather than the design itself. Therefore, façadism does not merely change the building, but it establishes a negative impact on the perception of the environment and urban identity. As it has been stated by Loyer (2001:18) at the conference called Façadisme et Identite Urbaine (Façadism and Urban Identity), in 17th and 18th centuries, façadism was employed to beautify cities, and in the post-war period, it was used for preserving the historical material that remained during rebuilding efforts. However, in contemporary usage, façadism is more about keeping the façade for economic reasons, which turns the historic buildings to the entrance of a prominent structure. Retaining the façade from the other parts of the design and perceiving it as a separate element segregates the building from its own design and from the environment as well. The property of segregating the building from the environment can affect the perception of people, which is detected in the Modern Movement artefacts as well.

When the Modern Movement evolved to a greater extent of the continuum of the architecture and the environment in the 20th century, the impact of buildings on the environment and the genius loci ceased. Depreciation, which is arising from the obsolescence of the materials and the functions of these buildings, blended with the lack of appreciation on the appraisal of them both as artefacts and cultural heritage by the society. Therefore, a particular need occurred for establishing an appropriate approach of adaptive re-use of this style. However, it might be possible to state that deploying adaptive re-use strategies on the Modern Movement artefacts can be more challenging than other heritage buildings. One of the principles associated with the 20th century architecture is the primary statement of Sullivan (1896:408) *"form follows function".* In this statement, Sullivan emphasised that the shape of a building

[26] Venice Charter, Venice, Italy, 1964.

or an object should be a result of its intended function or purpose. According to his statement, when a building loses its function, it should not be possible for the form and façade of the building to keep its meaning, and any intervention applied to the building might undermine the reason for existence of the structure. However, even though buildings have their own characters, they should be adaptable for the continuity of the building and the environment. In that regard, the adaptive re-use can be used for the continuity and the sustainability of the environment and cultural heritage.

As Bullen and Love (2011:413) states, the most successful adaptive re-use projects are those that respect and retain building's heritage significance as well as add a contemporary layer that provides value for the future. Therefore, adaptive re-use should preserve the meaning of the building while adding a new value, which would have an impact on the perception of the people. By doing that, adaptive re-use of cultural heritage can reinforce the feeling of place attachment for people. According to Ramkissoon et al. (2013:552), place attachment has the ability to influence both high and low effort pro-environmental behavioural intentions in the society. Furthermore, as Vaske and Kobrin (2001:117) state, the peculiarities of place attachment, place dependence and place identity are correlated with the environmentally responsible behaviour of people. Consequently, adaptive re-use of the cultural heritage can emerge the involvement of the society. It is essential to involve people, who are living in the environment, in the process of adaptive re-use if it is intended to be efficient as well as successful. Even though adaptive re-use cannot necessarily prevent displacement of the original residents of the buildings, it can still retain the social meaning of the place. Therefore, it requires an active contribution of the public. Moreover, it as well requires the involvement of a wide range of stakeholders who might interpret the values of historic buildings differently. Their contribution is important, because it is related to the socio-economic success of conservation and reuse. The participation of the people and stakeholders do not have to be at level, which results in deciding the whole process. It should be managed by listening to their opinions and needs in the projects. As a result, the participation of the society would strengthen the sustainability of the project and the sustainability of the cultural heritage.

Adaptive Re-use and Sustainability

According to Manenti (2011:1104), the idea of sustainability is based on the need to preserve natural resources, which already exist and the Earth could provide them for the future generations. Therefore, sustainability tries to establish a balance and harmony between the environment and nature, which can be transferred to the posterity. Nevertheless, it is as well possible to implement the same idea not merely for the natural environment, but to the built environment and architecture. The idea of sustainability can be applied to building design and can be adopted in the adaptive reuse of an existing structure and cultural heritage. The characteristics of architecture, which contains the ability to communicate memory and identity, can generate the capability of communicating values and a sense of a place. Therefore, it will fulfil the

requirement of sustainability on the continuity for future generations, and as a result, the buildings, which were once discarded as obsolete, can be recycled and brought back to life. Furthermore, as Pearson and Sullivan (1999:21) state, heritage conservation can contribute to the ecologically sustainable development. Therefore, in a broader context, the role of cultural heritage and historic buildings can become evident in sustainable development in various aspects. The sustainable preservation of historic buildings needs to contain a combination of sustainable design, sustainable development and historic preservation principles. However, the concept of sustainability and sustainable development is mostly used in the environmental studies.

As Tanguay et al. (2014:1) assert, the concept of sustainable development and sustainability began in the 1970s with the growth of the environmentalist movement. However, it is mainly because of the Brundtland report, which was published by the World Commission on Environment and Development (WCED), that the concept started to be discussed in the international and political spheres. In this report, sustainable development is defined as a development that meets the needs of the present generation without compromising the ability of the future generations to meet their own needs, in regard of harmonious development, concerning environmental, economic, and social dimensions. Therefore, the main assets of sustainable development are society, environment and economy. However, according to Hawkes (2001:1), sustainable development contains a fourth pillar, which is the culture. The main concern of sustainability and sustainable development is the protection and continuity of the resources, which are irreplaceable. In that regard, it is possible to state that cultural heritage is irreplaceable when it vanishes. As a result, sustainability is closely connected to the culture and cultural heritage. Moreover, cultural heritage as well contains all the other aspects that sustainable development is aiming to achieve.

According to Gražulevičiūtė-Vileniškė (2006:74), cultural heritage is not just a value of the individuals who own it, but it has a value for the well-being and quality of life of the communities. The social aspect of adaptive reuse can provide a connection with the past, and furthermore, it can result in the revitalisation of the neighbourhood. The physical revitalisation, which can be achieved by adaptive re-use, can have a positive impact on the surroundings, and furthermore, it can often encourage upgrades in the other structures around as well. Therefore, cultural heritage can be an inducement for sustainable development. Furthermore, conserving heritage buildings and assigning new functions and uses to the existing buildings according to their size, location and potential can have a direct impact on the environment. However, the proposed functions of the buildings, which are appropriate for the sustainability of the environment, might not always be preferable in every aspect. As Rabun and Kelso (2009:1) state, a building, to which the adaptive re-use will be applied with a change of use, must be evaluated from both the exterior and the interior, and the assessment of it must be done in a comprehensive manner. Furthermore, it is essential to pursue the acceptance of the artefact in its environment. Therefore, the modern additions, which might affect the recognition of the original elements, need

to be omitted. As a result, there are various factors, which have a direct and indirect effect on the process of adaptive re-use. In addition, each heritage building has its own conditions, which make its problems specific to the building that needs to be considered.

Conversely, as it was stated in the United Nations Environmental Programme in 2009, the process of adaptive re-use can be considered as a sustainable way of bypassing the wasteful process of demolition and reconstruction.[27] If the building is in a good structural condition and if it can easily be adapted to its new program, it would establish a potential for lower construction cost, lower land acquisition cost and less construction time depending on the extent of the work that was done. Furthermore, according to Johnson (1996:209), adaptive reuse can be agile in the process, when it is compared to constructing new places in the same area. Buildings that are considered the subject of the re-use process should be designed according to the internal layout of the environment that the building would be responsive to the local climate and the needs of the environment. However, if there are structural problems in the buildings or the building is not fulfilling the sustainable standards, adaptive re-use can be more expensive and problematic. But in ordinary conditions, adaptive re-use is more economical, and it can be adopted as an essential conservation intervention to recycle the resources for transforming the materials into contemporary usage. Therefore, the decision-making process of adaptive re-use has various aspects, which need to be well calculated.

One of the aspects, which are disregarded the most, is the socio-cultural aspect of adaptive re-use. As Bullen and Love (2011:42) state, the socio-cultural benefit of adaptive re-use has been given less priority when reuse is considered. However, it might not be because of giving less priority to it, but because it is harder to measure the social benefits and their emotional impacts on people. According to Alexander (2004:26), emotional responses towards architecture are mostly related to the interaction of people and the shared cultures. However, according to Salingaros (2013:64), if the claim of Christopher Alexander is accepted, emotional responses should not be a matter of opinion, but it should depend on the education and conditioning. Therefore, even the identification of the emotional responses and reflection of architecture on people are still a subject to debate. However, if it is related to conditioning, then, it can depend on indicators, which have an influence on people's perception. Considering the distinctive feature of perception, which is directly related to the interaction between the observer and the object that has been observed, it can be stated that the people's reactions towards objects can be related to their emotional awareness of the object, and in the case of architectural artefacts, it can be related to the language of a building. Consequently, it is possible to analyse and measure the perception of people instead of analysing the socio-cultural benefit directly to the artefact, which will undergo adaptive re-use. In that regard, analysing the indicators

[27] United Nations Environmental Programme, Division of Technology, Industry, and Economics, Green Meeting, 2009.

and attention loci in the language that the architecture represents might be an important tool.

3.2 Perception of Environment and Cultural Heritage

Even though attention was identified as the subjective awareness in the earlier years in the field of psychology, the definition of the subject altered and developed in the last decade. As Xia (2008:4) states, in the recent years, the concept of attention began to be defined as a neural system for the selection of information, which is akin in many ways to the visual, auditory or motor systems in the field of neuroscience. Especially visual systems receive a large part of the information gathering process from the people, since most of the time, the visual scenes contain many different stimuli and at the same time scrutiny, which can only be managed by visual attention. Encyclopaedia of Neuroscience defines the term visual attention as a set of cognitive operations that intervene in the selection of the relevant and irrelevant information from cluttered visual scenes (McMains, 2009:4296). Without a cognitive distinction, people would not be able to reach the data set they require or aim at, since they would receive and process a large amount of data on a daily basis. According to Kastner et al. (1999:751), when people direct their attention to a certain object or a particular location in a visual scene, their responses regarding the stimulus strengthen, and the distractions around the direct attention are fading in regard of importance. Therefore, visual attention helps people to collect valuable information in the process of perception and cognition.

In his leading research, Lynch (1960:8) highlighted the role of visual elements in the cognition of urban spaces and landscapes. According to Lynch, a picture, especially in people's mind, is essential for the perception of environment, and it is the outcome of a sentimental combination between objective city image and subjective human thoughts. People need to experience and confront different sets of data regarding their environment that they are in to be able to create a mental image of it. The creation of mental images can as well benefit the mental health of people, since it can generate positive feelings such as comfort and familiarity or negative feelings such as frustration or discomfort. According to the survey, which was performed in the United Kingdom by the Department of Culture, Media and Sport in 2014, cultural heritage and the historical landscapes contribute to the mental health and the happiness of people.[28] As it has been stated at key findings of the report, people who have been in an environment, which contains heritage, or people who had visited a heritage site in the last 12 months before the survey took place are significantly happier than those who had not visited. Psychological benefits that have derived from the interaction between the individual and the environment can give the

[28] Governmental Social Research Results Report, Department of Culture, Media and Sport, UK, 2014.

possibility to understand the effect of the environment and specifically historical landscapes on people.

Over the last fifty years, the studies about the environment and the impact of it on people's perception and psychology gained a greater value for the researches in environmental psychology and behavioural geography. The studies that analyse the evaluation of the landscape are established in the outlines of disciplines, which are related to the design by the analysis of the scenic beauty in environments that have an impact on the design approaches. However, according to Gold and Goodey (1983:578), the models of society, which have been widely used, while analysing the landscapes in geographical studies, developed the first impulse for the behaviouralist research. The appraisal of the landscape from the behaviouralist perspective added another constraint to the research field by including the emphasis on individuals as someone who shaped and responded to the limitations of the physical and social environment by highlighting the emotional and aesthetic considerations on the perception and behaviour. As a result, the interest in the perceived notions by the non-experts and society started to be researched under the preference studies.

As Holohan (1986:385) states, preference studies and the curiosity towards the environmental psychology gained momentum by the development and consolidation of the specialised field in psychology, which is dealing with the analysis of the interaction between individuals and their environment. The shift that has been gained by analysing human-environment interaction established four main paradigms in the field of landscape and environment research. According to Zube et al. (1982:8), the main paradigms that are based on this interaction in landscape perception are the expert paradigm, psychophysical paradigm, cognitive paradigm and experiential paradigm. While the expert paradigm, which is called formal aesthetics by Daniel (1990:634), includes the assessment of landscape quality by skilled and trained observers, which are the experts, the psychophysical paradigm involves evaluation through testing public or selected populations. Therefore, this second paradigm combines and measures the perception of society. However, as Daniel (1990:635) states, the main concern in psychophysical measurement methods is the relation between the indicator responses and hypothesised underlying psychological processes, such as perceived scenic beauty. However, the cognitive paradigm involves research on the meanings that people are associating with the environment through their past experiences and their prior knowledge. As such, cognitive paradigm and the theories that are established by this approach are connected with the biological and habitat theories, where preferences for specific types of environments were explained by their contribution to human survival and continuity of human life. The experiential paradigm is as well based on the experience of human–landscape interaction; however, in this paradigm, the process is believed to be on going, and the human and landscape can both shape each other. All these different paradigms are essential for understanding the interaction between individuals and their environment, and furthermore, they can help in describing the preferences and perception of people of landscapes and environment.

In that regard, in relation to research connected to cultural heritage and its perception, the cognitive approach can be implemented, because it is directly related to the judgement of people and their preferences. The visual attention that people have is not only related to the ability of the eye regarding seeing, but it can be described as the sum of both overt and covert data collection of the eye and its processing. Therefore, measuring or identifying the visual attention of people can be practical and informative regarding the understanding of perception.

3.3 Model of Cultural Heritage Perception Potential

As it has been emphasised at the Madrid Document of ICOMOS Scientific Committee in 2011, "the methodology for the 20th century cultural heritage should include comprehensive historical research and significance analysis in the development of policies to conserve, manage and interpret the identified cultural significance"[29]. However, while the cultural significance of an artefact is objective and most of the time decided by the experts, the meaning people attach to these artefacts and their perception of the same object might be different. As Salingaros (2013:65) states, people need to rely on their own perceptions rather than any physical measurements. The studies that are focusing on people's perception and judgement might be still ambiguous due to the methods, which are used in surveying, specifically the usage of photographs. According to Hetherington et al. (1993:284), the ratings based on still photographs of a scenic river landscape perception were less sensitive to changes in the low levels of the river than were ratings based on motion-video clips of the same landscapes. Furthermore, when the sound of the moving river was added to the motion-video representation, ratings were even more sensitive to low levels. In this study, the researcher concluded that still photographs might not be a valid medium for representing dynamic or nonvisual elements. Moreover, related studies as well reported that landscape preferences could be affected by sounds, especially when the sounds are incongruent with the visual experience. Therefore, researches, which are triggering more than one sensation for people might be more effective in the studies that are related to the perception of people. However, as Jacobsen (2007:239) states, in most of the cases, visual materials are used by the researcher based on their costs, because it is generally more expensive to bring significant numbers of interviewees to various sites. According to Daniel (2001:62), using photographs as a tool in research settings has the ability to provide needed experimental control over presentation

[29] The ICOMOS International Scientific Committee for Twentieth Century Heritage (ISC 20C) is developing guidelines for the conservation of heritage sites of the twentieth century during 2011–2012. As a contribution to this debate, the International Conference "Intervention Approaches for the Twentieth Century Architectural Heritage" - "CAH 20thC" adopted on 16 June 2011 the following text "Approaches for the Conservation of Twentieth Century Architectural Heritage", Madrid Document 2011.

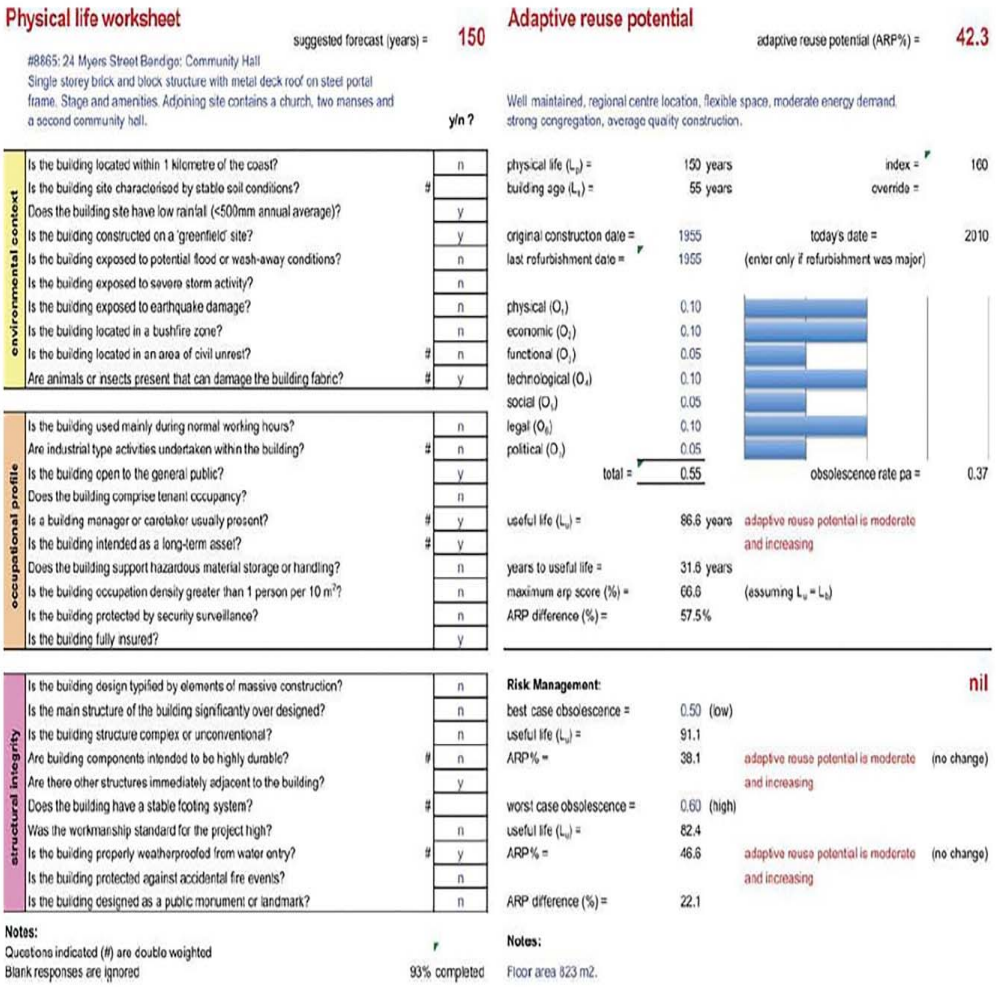
contexts and procedures. However, preferences and/or judgments based on photographs correspond to the responses, which might be elicited with direct experience related to the landscapes that are nominally represented. In addition, as Lange (2001:165) points out, there are questions of validity in the use and interpretation of responses to photographic images. Therefore, using photographic images has a potential to cause representational incorrectness. However, it is still possible to use photographic images as stimuli in order to allow interviewees to express their own perception and interpretation of the image without being imposed by the researcher-based opinions. Nevertheless, in the process of measuring the data of perception, it is crucial to understand and analyse the indicators, which affect the perception of people, and this can be achieved by using photographic images as stimuli.

While measuring the adaptive re-use potential of cultural heritage, an approach that is involving identifying and ranking the perception of cultural heritage and cultural significance of the buildings is essential. In order to understand and test the indicators, which affect people's evaluation of cultural heritage and induce people to qualify artefacts as a heritage, a model can be designed by the contextual analysis. Therefore, in this research, the research and methodology of Craig Langston on Adaptive Reuse Potential Model were analysed and extended while creating a new model.

According to the Adaptive Reuse Potential Model that Langston (2008:1712) has established, it is possible to identify and rank the adaptive reuse potential of the buildings. He suggests that the model requires an estimate of the expected life of the building and the current age of the building, both reported in years (**Pic. 21.**). Furthermore, it requires the assessment of physical, economic, functional, technological, social and legal obsolescence. Likewise, in his further research, Langston (2012) added political obsolescence. Therefore, the useful physical life of the building can be calculated, and it can be used for ranking the structures, according to the potential they offer for the adaptive reuse. The formula that he is applying for calculating the useful life is as follows:

$$\text{Useful Life}(L_u) = \frac{L_p}{(1+\sum_{i=1}^{7} O_i)^{L_p}},$$

where L_u = Useful life, L_p = Physical life, O_i = Obsolescences.



Pic. 21. Spreadsheet template of Craig Langston adaptive re-use potential model

The social obsolescence that he is using in this model is measured by the relationship between the building function and the marketplace. However, there is an invisible social context, which affects the social obsolescence of the structure, and it is the perception of the building. The image of the building that people create related to the impressions that the building gives to people can have an impact on the useful life of a structure as well.

Even though Craig Langston is dealing with historical buildings most of the time, in his model, the impact of the buildings as being historical or their value as cultural heritage is omitted, and they are just used as figures (**Pic. 22.**).

A	B	C	D	E	F	G	H	I	J
#10348: Mildura (Worship Centre)	1913	97	200	97	0.35	99	73.4	2	Low
#10108: Kyneton (Community Hall)	1901	109	200	97	0.30	110	69.3	1	Nil
#11172: Swan Hill (Church)	1918	92	200	97	0.33	105	64.0	13	Low
#8893: Brighton (Church)	1875	135	250	100	0.22	144	62.4	9	High
#10371: Mirboo North (Worship Centre)	1950	60	100	93	0.75	47	58.9	−13	Nil
#11425: Werribee (Church)	1884	126	200	97	0.28	115	58.4	−11	Nil
#11171: Swan Hill (Community Hall)	1960	50	100	93	0.55	58	57.6	8	Low
#10309: Mentone (Church)	1883	127	200	97	0.28	115	57.6	−12	Nil
#8864: Bendigo (Manse)	1900	110	200	97	0.25	121	57.2	11	Low
#9103: Camberwell (Worship Centre)	1885	125	200	97	0.33	105	57.1	−20	Nil
#9841: Heidelberg (Church)	1901	109	200	97	0.25	121	56.7	12	Moderate
#10109: Kyneton (Manse)	1857	153	250	100	0.32	112	56.3	−41	Nil
#9774: Hampton Park (Church)	1970	40	100	93	0.65	52	55.5	12	Nil
#10215: Malvern (Worship Centre)	1904	106	200	97	0.25	121	55.2	15	Moderate
#9995: Essendon North (Community Hall)	1924	86	150	93	0.30	96	53.3	10	Nil
#12462: Bendigo (Community Hall)	1960	50	100	93	0.50	61	52.0	11	Moderate
#8992: Brighton (Offices, formerly Manse)	1961	49	100	93	0.50	61	50.9	12	Nil
#11188: Tallangatta (Opportunity Shop)	1980	30	75	93	0.80	41	50.7	11	Low
#10402: Montrose (Church)	1960	50	75	97	0.93	37	49.9	−13	Nil
#8862: Bendigo (Manse)	1967	43	100	93	0.55	58	49.6	15	Nil
#10201: Maffra (Community Hall)	1961	49	150	93	0.47	75	49.4	26	Nil
#11296: Reservoir (Manse)	1940	70	100	93	0.45	64	49.1	−6	Nil
#8762: Ballarat (Community Hall)	1869	141	200	97	0.28	115	46.5	−26	Nil
#9993: Essendon North (Worship Centre)	1937	73	200	93	0.30	110	46.4	37	Low
#9213: St Kilda (Church)	1870	140	200	97	0.35	99	44.9	−41	Nil
#11620: Fitzroy (Manse)	1890	120	200	100	0.18	141	42.8	21	Extreme
#9513: Eltham (Manse)	1964	46	100	93	0.45	64	42.7	18	Low
#8865: Bendigo (Community Hall)	1955	55	150	93	0.37	87	42.3	32	Nil
#8861: Bendigo (Church)	1930	80	200	97	0.25	121	41.6	41	Moderate
#9094: Burwood (Worship Centre)	1950	60	150	90	0.33	91	41.6	31	Nil
#11360: Wangaratta (Opportunity Shop)	1970	40	100	93	0.50	61	41.6	21	Nil
#8761: Ballarat (Church)	1859	151	200	97	0.30	110	38.0	−41	Nil
#9728: Greensborough (Worship Centre)	1965	45	100	90	0.40	67	36.9	22	Nil
#10107: Kyneton (Church)	1857	153	200	97	0.30	110	36.4	−43	Nil
#9982: Keilor (Worship Centre)	1982	28	100	93	0.60	55	35.5	27	Low
#10129: Lakes Entrance (Worship Centre)	1980	30	100	93	0.55	58	34.6	28	Low
#9843: Heidelberg (Community Hall)	1965	45	150	93	0.33	91	31.2	46	Low
#9104: Camberwell (Offices)	1890	120	150	93	0.40	82	31.0	−38	Nil
#10573: Ringwood North (Worship Centre)	1962	48	150	90	0.30	96	29.7	48	Low
#8683: Hawthorn (Community Hall)	1889	121	150	93	0.57	64	27.6	−57	Nil
#9992: Essendon North (Childcare)	1926	84	100	93	0.40	67	26.7	−17	Nil
#9994: Essendon North (Manse)	1970	40	150	93	0.30	96	24.8	56	Low
#10945: Sandringham (Residential Units)	1975	35	150	90	0.33	91	24.3	56	Nil
#9991: Essendon North (Residential Units)	1978	32	150	93	0.33	91	22.2	59	Moderate
#9842: Heidelberg (Drop-in Centre)	1979	31	150	93	0.33	91	21.5	60	Low
#11036: South Melbourne (Residential Units)	1965	45	150	93	0.23	106	21.4	61	Low
#9844: Heidelberg (Coffee Shop)	1986	24	100	93	0.30	74	14.6	50	Low
#9045: Brunswick West (Residential Units)	1968	42	150	90	0.17	117	14.1	75	Low
#11399: Warrnambool (Manse)	2006	4	75	93	0.73	43	6.1	39	Nil
#10930: Rutherglen (Community Hall)	1958	52	50	93	1.80	20	0.0	−32	Nil
Average		75	150	94	0.43	87	42.2	12	
Coefficient of variation (%)					61				

Notes: A – Project Name; B – Date of Construction or Date or Last Major Refurbishment; C – Building Age (2010); D – Forecast of Physical Life (years); E – Amount of Physical Life Calculator Completed (%); F – Annual Rate of Obsolescence (%); G – Predicted Useful Life (years); H – ARP Score (%); I – Years to Useful Life Reached (years); J – ARP Risk Exposure (nil, low, moderate, high or extreme)

Pic. 22. Spreadsheet template of Craig Langston adaptive re-use potential estimation

For being able to measure the invisible social context, which should be added to the model to determine the adaptive re-use potential of a structure, it is important to evaluate buildings with their value as cultural heritage and especially to ascertain the indicators, which are affecting people's perception. However, the indicators, which would facilitate the measurement process, require to be identified by different approaches. In that regard, the experiments were performed for this purpose.

3.3.1. Experiment I (Social Survey) [30]

The aim of this experiment is analysing the indicators of the perception and attitudes of people towards the cultural heritage of the Modern Movement and the impact of memento value. The focus is to discover the relationship between the façade elements and the impression and how it is affecting the perception of cultural heritage, which can be used in the strategies of adaptive re-use. The experiment was designed to be implemented by interviews and a questionnaire to test participants' awareness of their surroundings, furthermore, to investigate the determining components, which have an impact on their discernment.

The experiment follows three main methodologies. The first one is the methodology of Nikos Salingaros, which he established for measuring the perceived quality of life in buildings and urban spaces with the analysis of geometry. According to Salingaros (2013:40), the quality of life comes from geometry and how geometry connects to the individuals. Therefore, the easiest way to perceive this quality of life is to compare pairs of objects or settings and judge intuitively which one has more life in them. Therefore, the comparison of pairs of objects can be easily achieved by using visual material of objects, which need to be examined. Furthermore, according to Robert Venturi (1966:13), architecture is open to the analysis like any other aspect of experience, and it is can be made more vivid by comparison. In that regard, for measuring the perceived indicators on the appraisal of cultural heritage, the same comparison method was adopted by the usage of photographs.

However, the other methodology, which has been adopted in this experiment, is the methodology of Galindo and Rodriguez (2000:13) on the environmental aesthetics and psychological well-being, where they implemented the extensive use of photographs to test respondents' awareness of their environment and the main affective responses that established their judgement. However, in this research, the awareness of heritage and the perceived notions, which assess the judgment on heritage, have been investigated by demonstrating pictorial material and asking open-ended questions. The reason for asking a rather open-ended type of question is based on the research methodology of Coolican (1994), which suggests that any predetermined options or suggestions might have an influence on the subject's

---

[30] This subchapter contains information from the articles of the author with the details below:

Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas, Lithuania. *Journal of Cultural Heritage and Sustainable Development*, 9(3), 430–443.

Doğan, H.A. (2018). Impact of memento value on the perception of cultural heritage: Case study of the modern movement and the dialect of Kaunas, *Journal of Science-Future of Lithuania*, 10.

imagination and perception. Therefore, the results of the experiment might be distorted. In that regard, the experiment contains two main questions that have been posed to the participants that would not influence their answers. The first question that was posed is as follows: in your perception, which one(s) of the pair is cultural heritage? The second question was (after the participants have decided on their selection) why did you choose that(those) building(s) as cultural heritage? The pictorial material, which has been demonstrated in this experiment, was selected from a collection of photographs, which were taken by the author or from the online resources.

The experiment is a questionnaire prepared by using 15 pairs of photographs of merged images, in which each pair aims to examine people's perception of cultural heritage and the specific indicators and components that they contemplate in their decision (**Pic. 23**). The full version of the experiment can be seen in Annexe II.

Pic. 23. Collage of all pairs that were demonstrated to the participants in the course of the experiment

The indicators that were tested in the experiment were ornament and material. However, as an outcome of the experiment, more indicators were expected to be

detected. The reason for choosing these indicators was related to the language of the Modern Movement and its appraisal as cultural heritage. The discourse of the Modern Movement, which was trying to establish a universal and functional style, developed a language that does not contain any ornaments or traditional materials. Therefore, the comparison of buildings, which have this style with other architectural expressions and differences between them regarding the appraisal of cultural heritage, can be informative in the experiment while deciding on the indicators. Therefore, the visual material, which was compared in this experiment, has been chosen concerning these peculiarities.

In eight pairs, the Modern Movement structures were compared to other structures with varying architectural styles. In the other seven pairs, the Modern Movement structures were collated, and the pairs contained different dialects, except for one of the pairs. Different façade materials were chosen across the set of pairs, such as wood, stone and plaster. Furthermore, buildings with ornaments were used in the comparisons (**Table 3.**).

Table 3. Indicators and information on the comparison pairs

A: represents the building A in the pair; **B**: represents the building B in the pair

	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
LOCATION	DE	LT	TR	DE	TR	LT	TR	TR	TR	LT	DE	LT	LT	TR	LT	TR	OTH	OTH	LT	OTH	TR	LT	TR	LT	TR	LT	LT	LT	TR	LT
SURFACE MATERIAL	ST	PL	PL	PL	ST	PL	ST	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	ST	PL	PL	PL	PL	PL	WD	PL	WD	PL
ORNAMENT	1	0	1	0	1	0	1	0	1	0	0	1	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
PATINA	1	0	0	0	1	0	1	0	0	0	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
MODERN MOVEMENT	0	1	0	1	0	1	0	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1
CULTURAL HERITAGE	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
COLOUR	DR	BR	NT	BR	NT	BR	DR	BR	BR	NT	NT	DR	DR	BR	NT	BR	BR	BR	DR	BR	NT	BR	DR	NT	NT	BR	DR	BR	DR	DR
LINE	VR	VR	IN	VR	HR	IN	HR	HR	VR	VR	VR	IN	HR	VR	IN	HR	HR	HR	VR	VR	IN	HR	VR	VR	HR	HR	VR	VR	VR	HR
	DE:GERMANY TR:TURKEY LT:LITHUANIA OTH: OTHER																													
	ST:STONE PL:PLASTER WD:WOOD																													
	DR:DARKER BR:BRIGHTER NT:NEUTRAL																													
	0:NO 1:YES																													
	HR:HORIZONTAL VR:VERTICAL IN:INTERIM																													

Participation and Procedures

In the design of the experiment, a qualitative approach and non-probability sampling have been adopted. The goal of adopting a non-probability sampling was not for achieving objectivity in the selection of samples or attempting to make generalisations (i.e., statistical inferences) from the sample that was studied by the wider population of interest. Therefore, making generalisations from the sample to the population under study is a secondary consideration. The aim of this experiment is to identify the indicators, which can be implemented in the model by determining inferential data and developing the research hypothesis. Consequently, the experiment is a pilot study.

In that regard, with a purposive and convenience sampling technique, 70 participants in total took part in the experiment through personal interviews. The participants requested to fill the questionnaire in an online form and asked to list their answers in a word document. However, some of the participants preferred to have a face-to-face interview. In that regard, interviewer met with the participants in person. In the selection of the participants, additionally, the snowball sampling method has been adopted. The potential participants who were willing to participate in the experiment with the average knowledge of cultural heritage were asked a set of questions, and the participants were asked to transfer the experiment in their circles that are fulfilling the same criteria.

Participants were heterogeneous regarding age, which ranged between 20–60, and heterogeneous regarding the place of origin. However, the criterion of age was found irrelevant to the experiment. Thirty participants from 70 in total were selected from people who are living in Lithuania, and who have had prior exposure to the Modern Movement heritage of Kaunas. Another 30 participants were selected from Turkey, who are acquainted with the Republican period dialect of the Modern Movement, Ottoman Architecture and cultural heritage. The final 10 participants from 70 in total were selected as a test group from different countries. Only 10 of the participants were chosen from the field of architecture or the fields related to cultural heritage, since the main aim of the experiment is to test the perception of non-experts.

The questionnaire includes a set of 30 colour photographs of Modern Movement buildings and buildings of various other architectural styles in fifteen pairs. All pairs of photographs have been demonstrated to the participants one by one, and the participants have been asked to choose the ones, which they would identify as cultural heritage in their own perception. The options for choosing a, b, both a and b and neither have been given to them (**Table 4.**).

Table 4. Answers given by the participants

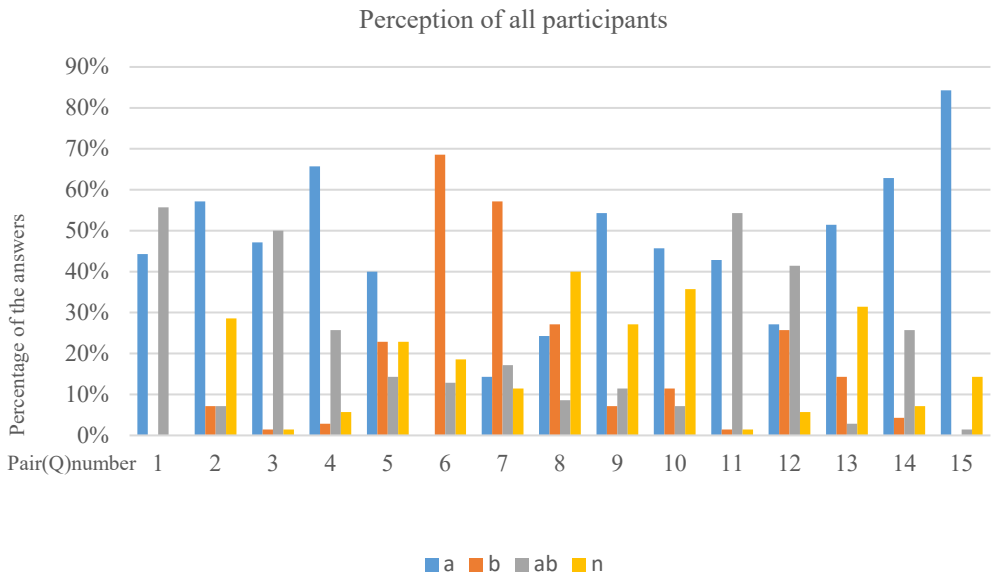
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15		
2	P1	A	A	A	A	A	B	B	B	A	A	A	B	A	A	A	.TR	
3	P2	AB	AB	A	A	A	AB	A	B	AB	AB	AB	AB	A	A	A	.TR	ARCH
4	P3	AB	AB	AB	A	A	AB	B	B	AB	AB	AB	B	A	A	A	.TR	ARCH
5	P4	A	A	AB	A	A	B	B	A	A	AB	A	AB	A	A	A	.TR	ARCH
6	P5	A	A	A	A	A	B	B	B	A	A	A	N	A	A	A	.TR	
7	P6	A	A	AB	A	A	B	A	A	A	A	A	N	A	A	A	.TR	
8	P7	AB	A	A	A	A	B	B	B	A	N	A	AB	A	A	A	.TR	
9	P8	A	A	A	A	A	N	N	N	A	N	A	N	A	A	A	.TR	ARCH
10	P9	A	A	A	A	A	N	B	N	A	N	A	A	A	A	N	.TR	
11	P10	AB	A	AB	A	A	B	N	N	A	A	A	A	N	A	A	.TR	
12	P11	AB	AB	AB	A	A	AB	N	N	A	A	A	A	A	A	A	.TR	ARCH
13	P12	A	A	AB	A	A	B	B	AB	A	A	A	A	A	A	A	.TR	ARCH
14	P13	A	A	A	A	A	B	B	B	A	A	A	B	A	A	A	.TR	
15	P14	AB	A	A	A	A	B	B	B	A	A	A	AB	A	A	A	.TR	
16	P15	AB	A	A	A	A	B	B	B	A	A	A	B	A	A	A	.TR	
17	P16	A	A	A	A	A	B	B	B	A	A	A	A	B	A	A	.TR	
18	P17	A	A	A	A	A	B	B	A	A	A	A	AB	A	A	A	.TR	
19	P18	A	A	A	AB	N	B	A	A	AB	N	AB	B	N	AB	A	.TR	
20	P19	AB	A	A	A	N	B	B	B	N	N	AB	AB	A	A	A	.TR	
21	P20	A	A	A	B	A	B	B	B	B	A	A	A	A	A	A	.TR	
22	P21	A	A	A	A	A	B	B	A	A	B	A	A	A	A	A	.TR	
23	P22	A	A	A	A	B	B	B	B	A	B	A	B	N	A	A	.TR	
24	P23	AB	A	A	A	B	B	B	B	A	B	A	A	A	A	A	.TR	
25	P24	A	A	A	A	A	N	B	N	A	N	A	B	N	A	A	.TR	ARCH
26	P25	A	A	A	A	N	N	B	N	A	N	A	A	A	A	A	.TR	
27	P26	AB	A	A	A	N	N	B	N	A	B	AB	AB	N	AB	A	.TR	
28	P27	A	A	N	AB	A	B	B	A	A	B	AB	AB	N	A	A	.TR	
29	P28	A	A	A	A	A	N	B	N	A	N	AB	B	A	A	A	.TR	
30	P29	A	A	A	AB	B	B	B	A	A	B	A	B	A	A	A	.TR	
31	P30	A	A	A	A	N	N	B	B	A	B	AB	B	A	A	A	.TR	
32	P31	AB	B	AB	A	B	AB	A	A	AB	AB	AB	AB	B	AB	N	.NL	
33	P32	AB	A	AB	A	N	N	B	B	N	N	AB	A	N	AB	A	.RO	
34	P33	A	N	AB	AB	A	N	B	N	N	N	AB	AB	N	AB	A	.LV	
35	P34	AB	N	AB	A	N	B	B	N	A	N	AB	AB	N	A	A	.UK	
36	P35	A	A	A	AB	N	B	B	N	N	N	AB	AB	N	A	A	.US	
37	P36	A	N	A	A	N	B	B	N	N	A	A	A	N	B	A	.IT	
38	P37	A	A	A	A	AB	B	B	B	N	A	A	B	A	B	A	.UK	
39	P38	A	A	A	A	A	B	B	A	A	A	AB	A	A	A	A	.NO	
40	P39	AB	A	A	A	A	B	B	N	N	A	AB	A	A	A	A	.EG	
41	P40	AB	N	A	N	A	N	B	N	A	A	AB	AB	N	A	A	.AZ	
42	P41	A	N	A	A	N	B	B	N	N	A	A	B	N	A	N	.LT	
43	P42	AB	B	B	B	B	AB	A	A	B	A	B	A	A	N	A	.LT	ARCH
44	P43	AB	A	AB	AB	AB	B	N	A	AB	A	AB	AB	A	AB	A	.LT	
45	P44	AB	N	AB	AB	B	AB	N	A	AB	A	AB	AB	A	AB	A	.LT	
46	P45	AB	N	AB	AB	B	B	AB	AB	N	A	AB	AB	N	A	A	.LT	
47	P46	AB	N	A	N	N	N	B	N	N	N	A	N	N	N	A	.LT	ARCH
48	P47	AB	N	AB	A	AB	B	N	N	B	N	AB	A	A	A	A	.LT	
49	P48	AB	N	AB	A	N	B	AB	N	AB	N	AB	AB	N	AB	A	.LT	
50	P49	AB	A	AB	N	B	B	AB	N	A	N	A	A	A	A	A	.LT	
51	P50	AB	N	AB	A	B	B	B	N	N	N	N	A	N	AB	N	.LT	
52	P51	AB	A	AB	A	N	N	AB	N	N	A	AB	AB	B	A	A	.LT	
53	P52	AB	A	AB	AB	B	B	B	A	A	AB	B	B	AB	N	.LT		
54	P53	AB	N	AB	AB	AB	B	A	N	N	A	AB	B	N	AB	N	.LT	
55	P54	A	N	AB	A	AB	N	B	N	A	N	A	AB	N	A	A	.LT	
56	P55	AB	N	A	AB	AB	B	AB	B	N	N	AB	AB	B	AB	AB	.LT	
57	P56	AB	N	AB	N	N	B	N	N	N	N	AB	A	N	N	A	.LT	
58	P57	AB	B	AB	AB	B	AB	A	AB	N	AB	AB	AB	B	AB	N	.LT	ARCH
59	P58	A	N	AB	A	A	B	AB	N	N	N	A	AB	A	A	A	.LT	
60	P59	A	N	AB	A	B	B	A	A	A	A	AB	B	AB	A	A	.LT	
61	P60	AB	AB	AB	A	AB	AB	AB	A	A	A	AB	AB	AB	AB	A	.LT	CH
62	P61	AB	B	AB	AB	AB	B	A	AB	B	A	A	AB	A	AB	A	.LT	CH
63	P62	AB	B	AB	A	B	AB	AB	N	AB	B	AB	A	A	N	N	.LT	
64	P63	AB	A	A	AB	B	B	AB	B	A	N	AB	AB	B	AB	A	.LT	
65	P64	A	AB	AB	A	A	B	B	N	A	N	AB	AB	A	AB	A	.LT	
66	P65	AB	N	AB	AB	N	B	A	A	B	N	AB	AB	N	A	A	.LT	
67	P66	A	A	AB	A	N	B	B	N	N	N	AB	B	N	N	A	.LT	
68	P67	AB	A	AB	AB	AB	B	AB	AB	A	A	AB	AB	B	AB	N	.LT	
69	P68	AB	N	AB	A	B	B	N	A	N	A	AB	AB	A	B	N	.LT	
70	P69	AB	N	AB	AB	B	B	AB	AB	A	A	AB	B	B	A	A	.LT	
71	P70	AB	A	AB	AB	AB	B	AB	A	A	A	AB	B	B	A	A	.LT	

A: building a is CH; **B**: building b is CH; **AB**: both buildings are CH; **N**: neither of the buildings are CH in the pairs

Analysis

With the aim of achieving the research objectives, three types of analysis were carried out: (1) first, the analysis of perception of cultural heritage and what is affecting the perception of people; (2) subsequently, the analysis for observing the impact of prior knowledge and information on judgement; (3) the analysis for observing the differences between opinions of experts and non-experts.

1) **Chart 10.**, presented below, shows the results that were obtained by analysing the percentages of a, b, ab, and n for each pair of photographs, which has been demonstrated for evaluating the perception of cultural heritage.



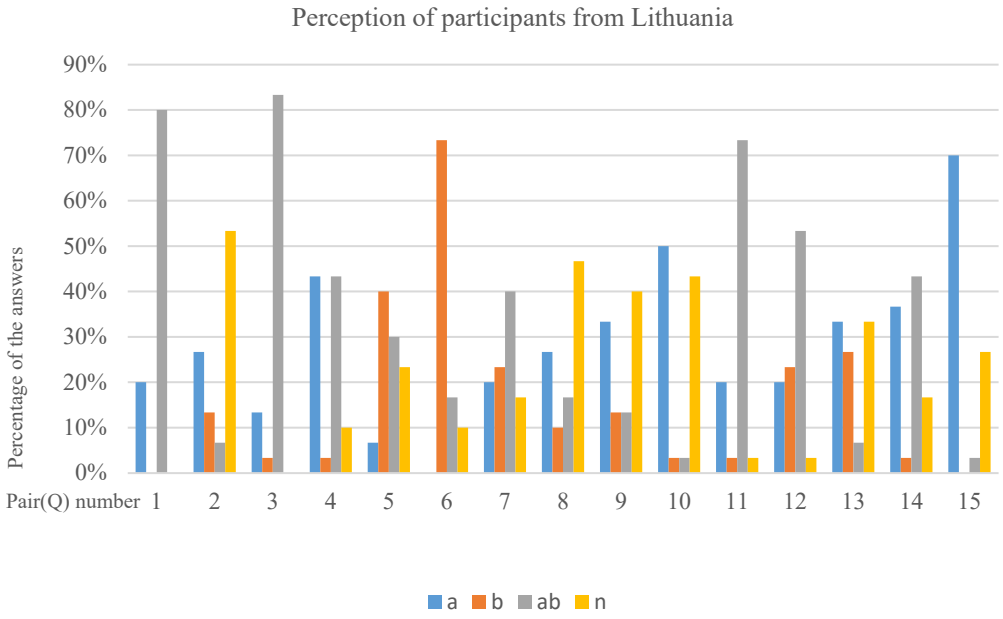
a: building a is CH, **b**: building b is CH, **ab**: both buildings are CH, **n**: neither of the buildings are CH in the pairs

Chart 10. Perception of cultural heritage according to the answers of the participants.

According to the chart, as it can be examined in pairs 1, 2, 3, 4, 5 and 9, people chose a, and in pair 7, people chose b, which were demonstrated in the building that contains ornament on its façade, rather than the building with the Modern Movement expression. Furthermore, in pairs 6 and 10, people made their preferences towards the buildings that have the layer of patina. In pairs 12 and 13, the selection of the people varies depending on their cultural background and the architectural language they are familiar with: the Turkish participants were more likely to label the Turkish building as cultural heritage, and the Lithuanian participants were more likely to label the Lithuanian building as cultural heritage, even though all buildings in these pairs are considered to be cultural heritage. Moreover, in pairs 14 and 15, people are more

likely to perceive traditional materials such as wood as cultural heritage rather than buildings, which are built with more modern techniques.

2) **Chart 11.** demonstrates the main results produced by the subset of participants who are from Lithuania. It is based on the analysis of the percentages of a, b, ab and n for each pair of photographs, which has been demonstrated in evaluating the perception of cultural heritage as in **Chart 10.**; however, in this chart, the participants are all from Lithuania.

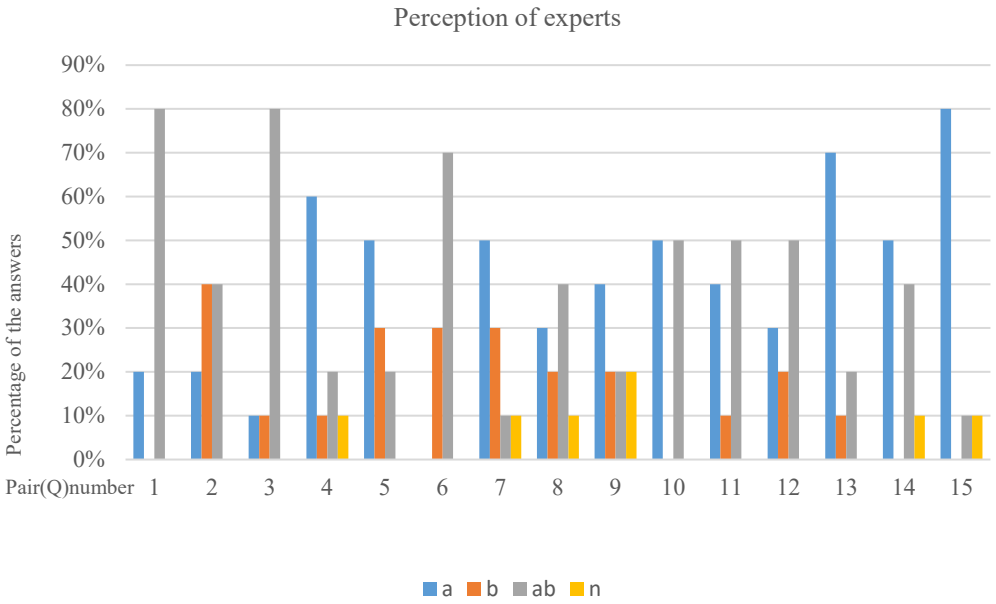


a: building a is CH, **b**: building b is CH, **ab**: both buildings are CH, **n**: neither of the buildings are CH in the pairs

Chart 11. Perception of people from Lithuania on evaluating the cultural heritage

According to the analysis, participants from Lithuania are more aware of the Modern Movement heritage in their environment due to the impact of memento value, which helps them to connect with the structures, and the education and information given to them. In pairs 1, 3, 5, 6, 7, 10 and 11, they have succeeded to identify the Modern Movement buildings in Kaunas, and they have evaluated them as cultural heritage. In pairs 8 and 13, the demonstrated buildings were lesser-known buildings of the Modern Movement in Kaunas; therefore, the scores of these buildings to be chosen as cultural heritage were lower than for the buildings where participants were informed about it. Furthermore, in pair 10, the decision of participants was related to the knowledge and the impact of the patina, and the participants could not easily identify the other building in the pair, even though it had the same architectural approach. In pairs 14 and 15, the participants' decisions were affected by the usage of wood as the surface material.

3) **Chart 12.,** provided below, demonstrates the main results that were obtained by the subset of participants who are experts.



a: building a is CH, **b**: building b is CH, **ab**: both buildings are CH, **n**: neither of the buildings are CH in the pairs

Chart 12. Perception of experts on evaluating the cultural heritage

According to the analysis, the participants who have expertise in architecture or cultural heritage identified the Modern Movement artefacts of Kaunas and the Modern Movement artefacts from other regions more accurately than the non-experts. However, when Bauhaus influenced cultural heritage of the Modern Movement was demonstrated next to a building, which contains ornament on its façade in pair 2, 40% of participants correctly chose the Bauhaus influenced building, but 40% of participants incorrectly appraised both as cultural heritage.

The results of the experiment suggest that people responded to various indicators while evaluating cultural heritage. One of the main indicators is ornament. In 8 pairs, the ornament was used to test the reaction of people; however, in 4 of the pairs, the ornamented buildings did not have any architectural value. Nevertheless, 97% of the participants considered ornamented buildings as cultural heritage. Furthermore, patina as well has an impact on perception. In pair 10, even though the compared buildings have the same proportions and approaches of the Modern Movement, 36% of the participants determined both as not cultural heritage, and 46% of the participants selected the building that contains patina on the surface as a cultural heritage. Moreover, when the results were analysed related to the use of traditional

materials on the façade, such as wood and stone, people had the tendency to choose wooden façades rather than the plastered ones.

As a result, people's perception of cultural heritage can be affected by different indicators. As Hillier (1996:86) states, building façades are physical shapes that are capable of being understood as communicators of information. However, in order to understand the shapes, the shapes need to be identified and recognised by the observer. The recognition of the shape of an object occurs in two stages. The first stage of recognition is the syntactic stage, and the second stage of the recognition is the semantic stage. In the first stage, people tend to perceive and determine the object by the impact of the indicators; however, in the second stage, people attach meaning towards the object, or they interpret what they see. Therefore, in order to understand the process of perception, it is important to identify the indicators well and evaluate them.

3.3.2 Model Design

The designing process of the model required to identify the indicators, which establish the impression for people to evaluate buildings as cultural heritage. Therefore, they could be used in a model. The potential indicators have been decided with the first experiment, which is the social survey. It might be possible to increase the number of the participants; however, for the design of the model, the amount of the participants produced enough information, and at the same time, they facilitated the testing of primarily foreseen indicators.

According to the results of the survey, the indicators that have the most substantial impact on people's perception of the building as heritage are as follows:

1.Material/Texture, 2. Ornament, 3. Patina, 4. Colour, 5. Lines (Vertical and Horizontal).

The model can be implemented in different countries and different buildings with various architectural expressions, although in the process of this research, it has been performed on the buildings in Kaunas.

The same methodology that Craig Langston used in his research has been employed with the idea of combining the two types of research more efficiently. According to the five indicators of the impressions, the score will be defined by the reduction of 20%, 10% and 0% from the total 100%, depending on the presence of the feature.

A scale for the usage of material is developed in such a way that the buildings that have traditional materials (wood, stone, brick) on their façade received 0% reduction, the buildings that have stone imitation formed by plaster on the façade received 10% reduction, and the buildings that have plaster received 20% reduction.

The ornaments of the buildings have been measured by the ratio of the façade surface covered with ornaments related to the proportion of the overall façade of the buildings. A scale has been developed: buildings with the ratio of ornament to the

proportion of the whole façade more than 15% received the reduction of 0%, a ratio, which is less than 15%, received the reduction of 10%, and buildings with no ornament received 20% reduction. Horizontal or vertical bandings or streamlines on the plasters are calculated as ornaments, since they are decorative elements; furthermore, they are not related to structural integrity.

According to the experiment, which has been implemented, people tend to choose the buildings that have a patina on their façade. Therefore, a scale has been developed: buildings that have more than 30% of patina received 0% reduction, buildings, which have less than 30% of patina, received 10% reduction, and buildings, which do not contain patina on their façades, received 20% reduction. The term *"patina*" is used for referring to the layer, which develops over the time on the façades of the buildings by a various range of factors, such as weather conditions, pollution etc.

Moreover, people as well tend to choose darker colours over the brighter coloured buildings. Therefore, a scale has been developed: buildings with darker colour received 0% reduction, buildings that have neutral or interim colour (including white) received 10% reduction, and buildings with brighter colours received 20% reduction. The buildings that have two different colours received 10% reduction as well.

The lines on the façade have been measured by the ratio of them to the proportion of the façade, which has an impact on giving the building a vertical or horizontal impression. According to Güngör (2010:87), the vertical lines in the design provide a monumental impression to the buildings. Furthermore, Ocvirk et al. (2013:102) assert that while the horizontal direction of a line could indicate serenity and stability, the vertical direction of a line could express poise and aspiration. Therefore, buildings, which have more vertical elements, have an impact on peoples' perception. The ratio has been calculated by the comparison of the multiplication of quantity and the length of both horizontal and vertical lines. A scale has been developed: buildings with the dominant characteristics of vertical lines received 0% reduction, buildings with interim domination received the reduction of 10%, and buildings with dominant attributes of horizontal lines received 20% reduction. The maximum 15% differences between the vertical and horizontal lines were disregarded and calculated as interim.

In order to analyse the cultural heritage perception potential, the defined parameters have been implemented on buildings. The score for each building would be defined as 0 if the CHPP were less than 50%. However, if the CHPP is 50%, the building will get score 1 (**Chart 13.**).

$\Sigma_{\mathrm{CHPP}} = Total\ Cultural\ Heritage\ Perception,\ \ \Sigma_{\mathrm{R}} = Total\ Reduction,$

$\mathrm{R_M} = Material\ Reduction, \mathrm{R_O} = Ornament\ Reduction, \mathrm{R_P} = Patina\ Reduction,$

$\mathrm{R_C} = Colour\ Reduction,\ \ \mathrm{R_L} = Line\ Reduction,\ \ O$= *Heritage Obsolescence.*

Therefore, it can be formulated as follows:

$O = \Sigma_{CHPP} = 100 - \Sigma_{R,}$

$\Sigma_R = R_M + R_O + R_P + R_C + R_L,$

$Score_0 = \Sigma_{CHPP} < 0.5,$

$Score_1 = \Sigma_{CHPP} > 0.5.$

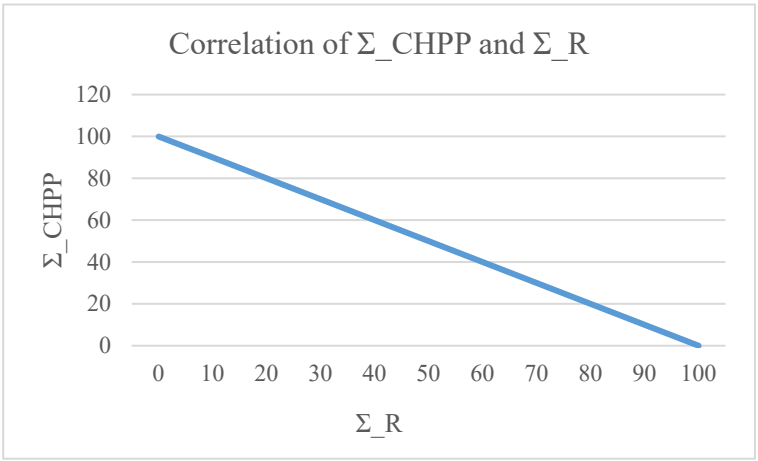


Chart 13. Correlation of CHPP and Total Reduction

A new model has been designed for measuring the invisible social context by CHPP (Cultural Heritage Perception Potential) that can be added as O_8 to the formula of Craig Langston's model, which is explained in the subchapter 3.3. Therefore, a new formula for the Langston model will be:

$$\text{Useful Life}(L_u) = \frac{L_p}{(1 + \sum_{i=1}^{8} O_i)^{L_p}}.$$

Testing the Indicators of the CHPP Model

According to the hypothesis of Sussman and Hollander (2015), modern or contemporary architecture does not provide the fixations that peoples' brain set out to see. As they argue, people refuse to look at blank walls; furthermore, the eye of an observer will linger over other areas rather than looking at the blank walls. In consonance with their research, they measured the areas on the façades of the buildings by eye tracking monitors and how the eye follows the façades. As a result, they have concluded that the elements such as patterns or edges establish stimuli on people's perception when they observe a structure. Therefore, the stimuli, which have an impact on the eye tracking of people, might be related to the notions, which influence the social appraisal of cultural heritage. In that regard, the Modern Movement is an interesting example for investigating the perception of architecture and heritage by people and society, because it does not contain all the notions and indicators, which have been ascertained by the performed experiment.

Hereof, for testing the reliability of the indicators and accuracy of the model, a pilot experiment has been performed on the Modern Movement buildings. In this pilot experiment, the buildings, which were demonstrated to the participants, were chosen from Germany, Turkey and Lithuania, because all have different expressions of the Modern Movement. However, there are other structures that have been used in the experiment, which do not represent any architectural style, although the selected buildings contain most of the indicators ascertained by the first experiment. The scores of the buildings have been calculated by the model regarding the different reduction rates that the structures received and the properties of buildings. Finally, another pilot experiment was performed to test the accuracy of the model for validation.

In this pilot experiment, 32 buildings in total were demonstrated to the participants using an online survey method (**Pic. 24.**). Therefore, this experiment as well adopted a qualitative approach and non-probability sampling. In total, 274 participants that were willing to participate were randomly selected by the convenience sampling technique and took part in the experiment. Participants were heterogeneous regarding age, which ranged between 15–70, and heterogeneous regarding their gender. Furthermore, they were heterogeneous regarding their nationalities. Seventy-seven participants from 274 were contributed by people who are living in Lithuania. A hundred seventy-five participants contributed from Turkey, and 22 participants from 274 were from different countries. However, the experiment results were as well analysed by equal participants of seventy-seven Lithuanian and seventy-seven Turkish people.

Pic. 24. Buildings that have been demonstrated in the online survey

As in the first experiment, the goal of this experiment was not to achieve objectivity in the selection of samples or attempt to make generalisations (i.e., statistical inferences) from the sample that was studied by the wider population of interest. The goal of this experiment was testing the indicators, which can be implemented in a model. Therefore, this experiment was a pilot study as well. The assessments of the results can be seen in **Table 5**.

Table 5. Results of the buildings by the CHPP model

ID	LOCATION	MATERIAL	ORNAMENT	PATINA	COLOUR	LINES	CH	TOTAL REDUCTION	CHPP	SCORE	QUESTION SCORES	Q_R FOR ARP	QUESTIONNAIRE RESULTS	EQUAL PARTICIPANTS
1	DE	0%	10%	10%	20%	20% V:40, H:90	1	60%	40%	0	0	0.08	YES 36% NO 64%	YES 30% NO 70%
2	LT	0%	20%	0%	0%	0% V:220, H:180	1	20%	80%	1	1	0.16	YES 76% NO 24%	YES 76% NO 24%
3	DE	20%	20%	20%	10%	20% V:24, H:48	1	90%	10%	0	0	0.02	YES 14% NO 86%	YES 10% NO 90%
4	LT	10%	0%	0%	10%	10% V:70, H:72	1	30%	70%	1	1	0.14	YES 91% NO 9%	YES 89% NO 11%
5	DE	20%	20%	20%	20%	10% V:36, H:40	1	90%	10%	0	0	0.02	YES 20% NO 80%	YES 21% NO 79%
6	TR	20%	0%	20%	0%	0% V:330, H:108	1	40%	60%	1	1	0.12	YES 87% NO 13%	YES 85% NO 15%
7	TR	20%	10%	10%	10%	0% V:90, H:25	1	50%	50%	0-1	1	0.10	YES 62% NO 38%	YES 43% NO 57%
8	TR	20%	20%	10%	20%	20% V:9, H:37	1	90%	10%	0	0	0.02	YES 13% NO 87%	YES 12% NO 88%
9	TR	10%	0%	20%	10%	0% V:96, H:32	0	40%	60%	1	1	0.12	YES 55% NO 45%	YES 57% NO 43%
10	LT	20%	10%	0%	0%	0% V:266, H:96	1	30%	70%	1	1	0.14	YES 76% NO 24%	YES 77% NO 23%
11	TR	10%	0%	20%	10%	0% V:145, H:76	0	40%	60%	1	1	0.12	YES 54% NO 46%	YES 60% NO 40%
12	LT	20%	10%	10%	10%	10% V:86, H:88	1	60%	40%	0	0	0.08	YES 40% NO 60%	YES 45% NO 55%
13	DE	20%	20%	20%	20%	0% V:54, H:13	1	80%	20%	0	0	0.04	YES 32% NO 68%	YES 27% NO 73%
14	LT	20%	10%	10%	10%	10% V:102, H:108	1	60%	40%	0	0	0.08	YES 37% NO 63%	YES 41% NO 59%
15	DE	20%	20%	20%	20%	0% V:56, H:40	1	80%	20%	0	0	0.04	YES 48% NO 52%	YES 40% NO 60%
16	LT	20%	0%	10%	10%	0% V:152, H:45	1	40%	60%	1	1	0.12	YES 84% NO 16%	YES 84% NO 16%
17	TR	20%	10%	10%	0%	20% V:20, H:88	1	60%	40%	0	0	0.08	YES 39% NO 61%	YES 41% NO 59%
18	TR	0%	10%	20%	10%	20% V:54, H:96	0	60%	40%	0	0	0.08	YES 45% NO 55%	YES 38% NO 62%
19	LT	20%	10%	0%	0%	0% V:600, H:225	1	30%	70%	1	1	0.14	YES 63% NO 37%	YES 66% NO 34%
20	LT	0%	0%	10%	10%	20% V:27, H:52	1	40%	60%	1	1	0.12	YES 78% NO 22%	YES 77% NO 23%
21	TR	20%	20%	10%	20%	20% V:24, H:41	1	90%	10%	0	0	0.02	YES 23% NO 77%	YES 24% NO 76%
22	TR	20%	0%	20%	10%	10% V:67, H:69	0	60%	40%	0	0	0.08	YES 43% NO 57%	YES 49% NO 51%
23	TR	20%	20%	10%	0%	10% V:102, H:87	0	60%	40%	0	0	0.08	YES 16% NO 84%	YES 16% NO 84%
24	DE	20%	20%	20%	10%	10% V:54, H:51	1	80%	20%	0	0	0.04	YES 19% NO 81%	YES 17% NO 83%
25	LT	20%	10%	10%	0%	20% V:100, H:260	1	60%	40%	0	0	0.08	YES 44% NO 56%	YES 48% NO 52%
26	LT	20%	0%	0%	10%	10% V:102, H:99	1	40%	60%	1	1	0.12	YES 64% NO 36%	YES 58% NO 42%
27	TR	0%	0%	20%	0%	0% V:99, H:51	1	20%	80%	1	1	0.16	YES 95% NO 5%	YES 95% NO 5%
28	DE	20%	20%	20%	20%	10% V:67, H:70	1	90%	10%	0	0	0.02	YES 28% NO 72%	YES 20% NO 80%
29	LT	20%	10%	20%	20%	10% V:75, H:73	1	80%	20%	0	0	0.04	YES 16% NO 84%	YES 14% NO 86%
30	LT	20%	10%	10%	10%	10% V:100, H:115	1	60%	40%	0	0	0.08	YES 17% NO 83%	YES 17% NO 83%
31	DE	20%	20%	20%	10%	20% V:36, H:90	1	90%	10%	0	0	0.02	YES 30% NO 70%	YES 24% NO 76%
32	LT	20%	0%	10%	0%	0% V:179, H:68	1	30%	70%	1	1	0.14	YES 51% NO 49%	YES 55% NO 45%

DE: GERMANY LT: LITHUANIA TR: TURKEY

According to the results of the pilot experiment, it is possible to observe that even though the indicators, which have been defined by the first experiment, seem to be accurate, it might not be enough for providing scores to the buildings when the CHPP is 50%. Furthermore, when the building which achieved the 50% CHPP is analysed by different values, such as, more participants from one nationality or equal participants from both nationalities, the results can vary as well. In that regard, the model has a limitation, and it requires further indicators, which can provide more accurate results in the analysis. Therefore, a second experiment is applied with the help of the eye-tracking technology for determining new indicators and validating the existing indicators. However, the application of eye-tracking technology can help to generate the correlation analysis between decision-making and what people are looking at.

3.3.3. Experiment II (Eye Tracking)

The second experiment, which was applied in this research, involves the usage of eye-tracking technology. By applying eye tracking, the experiment is seeking to understand the indicators, which are affecting the decision-making processes of the people towards the cultural heritage. In that regard, the use of eye tracking as a research tool can provide additional data, which can help to limit the area for conceiving the decision processes easier.

Eye tracking is a research tool, which is based on measuring the eye movements of the subjects. This technology has become more accessible in recent years; furthermore, its implementation can be detected in a broader range of scientific fields by various scholars, such as analysts, cognitive psychologists, psycholinguists, neurophysiologists etc., due to miscellaneous reasons. According to Holmqvist et al. (2011:9), the usage of eye trackers can be traced back to the late 19th century. However, the principle of photographing the reflection of an external light source from the fovea has been introduced at the beginning of the 20th century. As a result, the eye-tracking technology has been used in various fields of science for a long period of time by different methods.

One of the founders and pioneers of the modern eye movement research is Yarbus. In his book called *Eye Movements and Vision*, which was published in Russian in 1965 and translated into English in 1967, he influenced most of the recent approaches to the study of eye movements and vision. According to Tatler et. al (2010:11), the last chapter of Yarbus's book, which was called "Eye movements during perception of complex objects", is the most important addition to the field of studies related to the eye tracking. His research involved measurements of eye scanning paths of observers on a picture painted by Ilya Repin. When the scan paths of the observers are analysed, the eye scans differ regarding the question that Yarbus asked the participants. According to Yarbus (1967:196), when people are examining complex objects, the eye fixates mainly on certain elements of these objects. Therefore, the eye rests much longer on some of these elements than the others, while some elements may receive little or no attention when people are looking at objects that contain different elements. Moreover, according to Williams (1997:160), the analysis regarding the movement of the eye that were observed in the parallel and serial search conditions support that the eye movements are correlated with the attentional processes underlying performance on such tasks. Therefore, the eye movements are highly related to visual attention and the questions that the participants are asked. As it has been stated by Findlay and Gilchrist (2012:902), the objects that are salient might differ from moment to moment and from individual to individual; therefore, the eye scan would be able to reflect the interests, expectations and biases of each individual. In that regard, analysing the eye-movements and recording of those movements can help to identify the elements that are attracting the attention of the subject or the observer, and it can contain useful information on the perception of people and the elements, which are affecting or influencing the perception.

The elements, which are affecting the attention of the subject or the observer, can be measured by two main movements of the eye. These movements are fixations

and saccades. Fixation is a short and relative pause of the eye when a person consciously processes information from the point that it is observing. As Tatler (2014:18) states, especially when people are viewing complex scenes, fixations are allocated preferentially to certain locations, while other locations receive little or no scrutiny by foveal vision. Moreover, fixations can demonstrate that the observer is engaged in that location. When the time period of the fixation is longer, the observer does observe and process more information. Therefore, fixations would be longer on the areas that are valued more on the information scale. However, a saccade is a quick movement of the eye between fixations. During this period of the eye movement, the information is processed as well, but most of the time, this sequence is unconscious. Consequently, both fixations and saccades are important elements for measuring eye movements, analysing and understanding the information gathering methods of people that are using them either consciously or unconsciously, which have an impact on the perception of people. In that regard, when the experiment is applied, the technique of recording the fixations and saccades has been implemented.

Method and Apparatus

According to the research of Yarbus (1967:195), when people view a complex scene for an extended period of time, it is likely that people would demonstrate repeated cycles of inspection. Furthermore, the analysis demonstrates that during these cycles, the eye stops and examines the most important elements of the picture determined by the nature of the object and the problem that the observer is facing at the moment of perception. In that regard, the recordings, which have been composed for tracking the eye and measuring the fixations and saccades, have been ceased when the cycles appear to repeat frequently on the indicators. However, the Scanpath Theory, which was developed by Noton and Stark (1971:311), suggests that the paths taken by the eye during extended viewing are an integral part of people's perception of complex images. In that regard, repeated cycles of the fixations have been marked as more important fixations of the observer.

In this research, wearable eye trackers were used as a research tool (**Pic. 25**). The eye movements of the right eye were recorded with a monocular eye tracker, which has a high-speed world camera that contains the sensor with frame rates of 1920x1080 @30fps, 1280x720 @60fps, 640x480 @120fps and diagonal FOV lenses, which are 60 and 100 degrees with a latency of 5.7 ms. The Eye camera, which is used in this experiment, contains the sensor with a frame rate of 200x200 @200fps, 400x400 @120fps with the latency of 4.5 ms. Therefore, the experiment contains two cameras. The eye camera is aimed at the eye pupil, while the world camera is recording the area that the subject is observing. With the help of two cameras, the eye movements and gaze points were recorded while the subject was observing a set of photographs with 11 different buildings. In the experiment, two different sets of photographs were used.

Pic. 25. Picture of the eye tracking glasses, which were used in the experiment by Pupil Labs

The photographs that were demonstrated in the experiment contain various façade images, which were taken by the author with Nikon D3400 camera with 24.2 Megapixels effective pixels, 23.5x15.6 mm sensor size, and 6000x4000 maximum resolution (the experiment sheets can be seen in Annexe III). The buildings were chosen from the structures that were listed on the UNESCO nomination file of Kaunas, which were selected by the experts and from the contemporary buildings in Kaunas. The photographs were projected by a projector with the native resolution of 1024x768 and a maximum resolution of 1600x1200 to a screen which size is 160x200cm. The usage of eye trackers provided the possibility to analyse the fixation points and the indicators that the participants are examining while they are evaluating the artefact as cultural heritage. In that regard, the experiment as well provided valuable information regarding the differences by the choices of experts and non-experts as well.

After the experiments were performed, the reason for the decisions and the characteristics of the façades, which affected the participant's decision processes, were asked verbally to the participants.

Participation and Procedures

In the design of the experiment, a qualitative approach and a non-probability sampling method have been applied. The reason for adopting a non-probability sampling method was related to the ability to apply purposive sampling which matches with the goal of the experiment. The goal of the experiment was not to achieve objectivity or generalisation but identify the indicators, which can be implemented in the model. Therefore, the experiment was a pilot study.

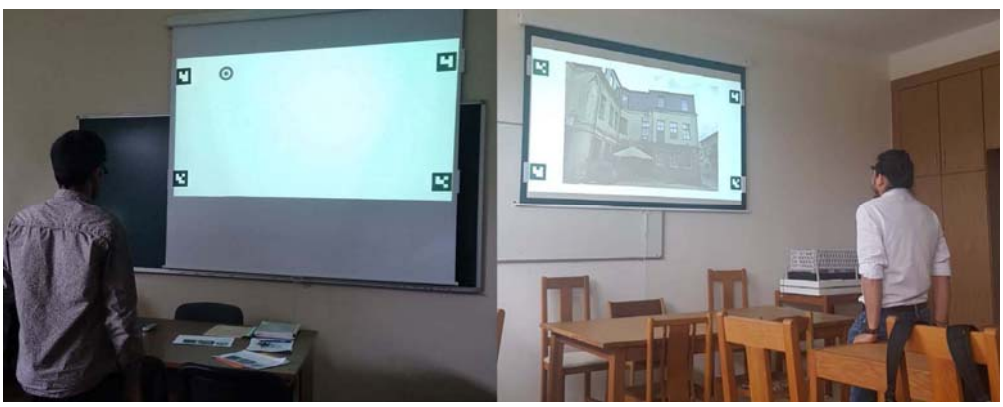
As a part of purposive sampling, the criterion case sampling method has been adopted in the research. According to the first experiment, prior knowledge has an essential role in the appraisal of artefacts. Furthermore, cultural memory and the meanings people attach to the environment and the buildings have an impact on the perception and interpretation. Therefore, this experiment adopts this knowledge as the

origin. Consequently, if the older generation, which has prior knowledge and cultural memory, cannot perceive the artefacts, which are demonstrated to them, as cultural heritage, it is implausible for the younger generation to evaluate these artefacts as cultural heritage. However, it is possible that the older people would perceive some of the buildings, which are demonstrated to them, as cultural heritage due to cultural memory and prior knowledge without the need of the indicators. In that regard, selecting the participants from younger generations can give the ability to determine more physical indicators in their evaluation process.

In the selection procedure of the participants, a convenience sampling approach has been adopted by a sequential sampling method. Therefore, the experiment finalised when the indicators got repetitive, and the estimated means in the sample reached saturation in a pre-specified range of the confidence interval.

According to this method, the participants were selected from Bachelor and Master students of Faculty of Architecture and Faculty of Social Sciences, Arts and Humanities at Kaunas University of Technology. The participants were informed about the experiment and were asked to participate. As a result, 39 students with age ranging between 18 and 30 years old have participated in the research. However, there were 2 invalid recordings; therefore, in the experiment, the data of 37 students were used. The invalid recordings were caused by the makeup of the female students or the darker eye colour of the students, which did not allow the eye tracker to record accurately. The distribution was fairly equal between females (n = 18) and males (n = 19).

The course of performing the experiment proceeded with the calibration of the eye tracking glasses for each participant. Both manual marker calibration and natural feature calibration methods were adopted in the experiment depending on the conditions. Furthermore, in both methods, a 9-point monocular calibration operated for central fixation accuracy and a full calibration. The calibration process served as a cue for the participant to acclimate to the procedure and the experiment (**Pic. 26**).



Pic. 26. The process of the experiment with the participants

After checking for the central fixation, the experimenter manually triggered the start of each trial. The experiment lasted approximately 12 seconds for each building and 2 minutes in total. The data of eye tracking has been recorded by wearable eye-tracker and laptop computer. The participants were located approximately 4 meters away from the photograph of the building where the whole façade can be visible for the participant.

Data Analysis

The overall quality of the data, which was recorded by the eye tracker, was calculated as the average deviation between the calibrated point of regard (POR) and 9 validation points. The average horizontal and vertical deviation was 0.62 and 0.75◦, respectively. The number of missing samples due to the blinks is approximately 13%. The eye movement data of each participant were extracted, and the eye movement events, such as fixations, saccades and blinks, were detected by the software called Pupil Capture. The analysis of the data, which have been recorded with the wearable eye trackers, were performed on the computer with the help of the software called Pupil Player. Both software, which have been mentioned, are the default software of the eye tracking glasses. However, during the analysis, the need for examining the recordings frame by frame emerged due to the recordings that were containing the whole test, and the photographs needed to be analysed one by one. In that regard, the free software called QGIS was used for the analysis.

The Pupil Player software allows replaying the recordings and gives the possibility to track the counts of the fixations and saccades of the gaze. Furthermore, the software can provide the data at the start, end and duration of fixations, the coordinates of the gaze position in x and y as surface-gaze distribution, confidence and dispersion. According to the data, which has been extracted by the Pupil Player, the data has been represented by two main methods. The first method is transferring the fixation counts to a static image. The transfer process has been achieved by manually analysing the video in every frame. The second method is establishing heatmaps. However, the movement of the head, which is constantly changing the position of the observer's coordinates in the recording process, establishes complications in the creation of the heatmaps. Therefore, the heat maps were created with the help of markers, which identify the area of interest. The markers, which have been applied in the experiment, were A4 sized and previously defined marker patterns by the Pupil Labs. In the course of the experiment, the markers are attached to the four corners of the screen where the photographs are projected.

Results of the Analysis

The second experiment was performed for the validation of the indicators, which were suggested by the first experiment and determination of new indicators, which can be applied in the Cultural Heritage Perception Potential Model. The responds of the participants regarding their observation of the photographs and their appraisal of each building as cultural heritage or not are demonstrated in **Table 6.** and **Table 7**. The network analysis method is applied in analysing the network of eye trajectories that are weighted by their time spent at each point, which were used for the establishment of the heatmaps. According to the results achieved by the heatmaps and the fixation point counts, the indicators were identified.

Table 6. Participant responses regarding questions of Experiment sheet 1

AP62

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
2	4-P4	1	0	1	0	1	1	0	1	0	1	1		MARCH
3	9-P0	1	0	1	0	1	0	0	0	0	1	1		MARCH
4	9-P2	0	0	1	0	1	0	0	1	0	1	1		MARCH
5	9-P4	0	0	1	0	1	0	0	1	1	1	1		MARCH
6	9-P5	0	0	1	0	1	0	1	1	1	1	1		MARCH
7	9-P6	1	0	1	0	1	0	0	1	0	1	1		MARCH
8	10-P2	1	1	0	0	1	0	1	1	0	1	0		SOC
9	10-P3	1	1	0	0	1	0	1	1	0	1	0		SOC
10	10-P4	0	0	1	0	1	0	1	0	0	1	0		SOC
11	10-P5	1	0	0	0	1	0	1	1	0	0	0		SOC
12	10-P6	0	0	0	0	1	1	1	1	0	1	1		SOC
13	10-P7	1	0	0	0	1	0	1	1	0	1	1		SOC
14	10-P9	0	0	1	1	1	0	0	0	1	1	1		BARCH
15	10-P14	1	0	1	0	1	1	1	0	1	0	1		BARCH
16	10-P16	0	0	1	0	1	0	0	0	0	1	1		BARCH
17	11-P0	1	0	1	0	1	0	1	1	1	1	1		BARCH
18	11-P1	1	1	0	0	1	1	1	1	0	1	1		BARCH
19	11-P4	1	0	1	0	0	0	1	0	0	1	1		BARCH
20	15-P0	1	0	1	0	1	0	1	1	0	1	1		SOC
21	15-P1	1	0	1	0	1	1	1	1	0	1	1		SOC
22	15-P7	0	0	1	0	1	0	1	1	0	1	0		SOC
23														
24														
25														
26	Total Participants	21												
27	Number of Y	13	3	15	1	20	5	14	15	5	19	16		
28	Number of N	8	18	6	20	1	16	7	6	16	2	5		
29														
30														
31														
32	Percentage of all - Y	62%	14%	71%	5%	95%	24%	67%	71%	24%	90%	76%		
33	Percentage of all - N	38%	86%	29%	95%	5%	76%	33%	29%	76%	10%	24%		
34														
35		ORNA.	DAM.	ORNA.	INTER.	ORNA.	INTER.	ORNA.	ARCH.	INTER.	ORNA.	INTER.		
36		INTER.	INTER.	INTER.		INTER.	ARCH.	ARCH.						
37		ARCH.		ARCH.		ARCH.								

Q: Question, **P**: Participant, **0**: Not Heritage, **1**: Heritage, **MARCH**: Master students of Architecture, **BARCH**: Bachelor students of Architecture, **SOC**: Students of Social Sciences

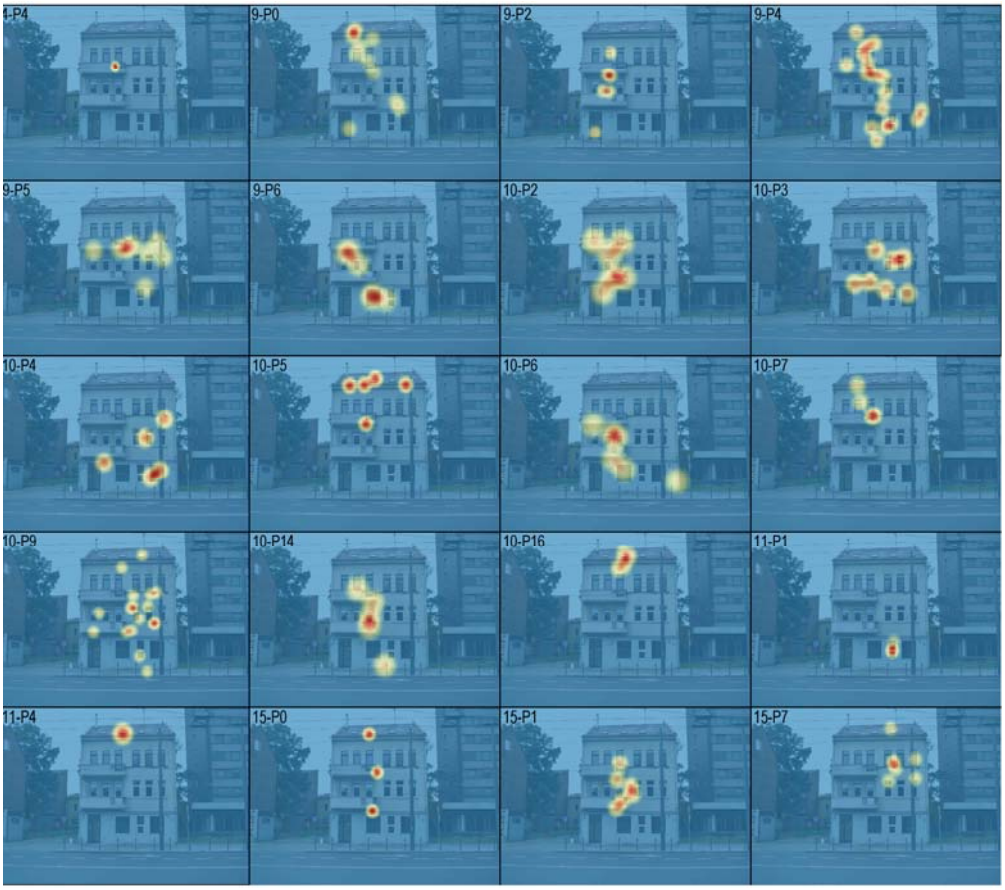
Table 7. Participant responses regarding questions of Experiment sheet 2

AW71

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11		
2	4-P3	1	1	1	1	1	0	1	0	1	1	0		MARCH
3	9-P1	1	1	1	1	0	1	0	0	1	1	0		MARCH
4	9-P3	0	1	1	0	1	0	1	1	1	1	1		MARCH
5	9-P7	1	1	1	0	0	0	1	0	0	0	1		MARCH
6	10-P0	0	1	1	0	0	0	1	0	1	1	0		SOC
7	10-P1	0	0	0	0	1	0	0	1	0	1	0		SOC
8	10-P8	0	1	0	0	0	0	0	0	0	1	1		SOC
9	10-P11	0	0	1	0	0	1	0	1	0	0	0		SOC
10	10-P12	1	0	0	0	0	1	0	1	1	1	0		SOC
11	10-P17	1	0	1	0	0	1	0	0	1	1	0		SOC
12	11-P2	1	1	1	1	0	1	1	0	0	1	0		BARCH
13	11-P3	1	1	0	0	0	0	0	0	0	1	1		BARCH
14	15-P2	0	1	1	0	0	0	0	0	0	1	0		SOC
15	15-P3	0	0	1	0	0	1	0	0	0	1	0		BARCH
16	15-P4	0	1	1	1	0	1	0	0	0	1	0		BARCH
17	15-P6	0	1	1	0	0	0	1	0	0	0	0		BARCH
18														
19														
20														
21														
22														
23														
24														
25														
26	Total Participants	16												
27	Number of Y	7	11	12	4	3	7	6	4	6	13	4		
28	Number of N	9	5	4	12	13	9	10	12	10	3	12		
29														
30														
31														
32	Percentage of all - Y	44%	69%	75%	25%	19%	44%	38%	25%	38%	81%	25%		
33	Percentage of all - N	56%	31%	25%	75%	81%	56%	63%	75%	63%	19%	75%		
34														
35														
36		INTER.	ARCH.	ARCH.	INTER.	xxxxxxxx	INTER.	ARCH.	INTER.	INTER.	ARCH.	INTER.		
37			INTER.					INTER.			PAT.	DAM.		
38								MATER.						

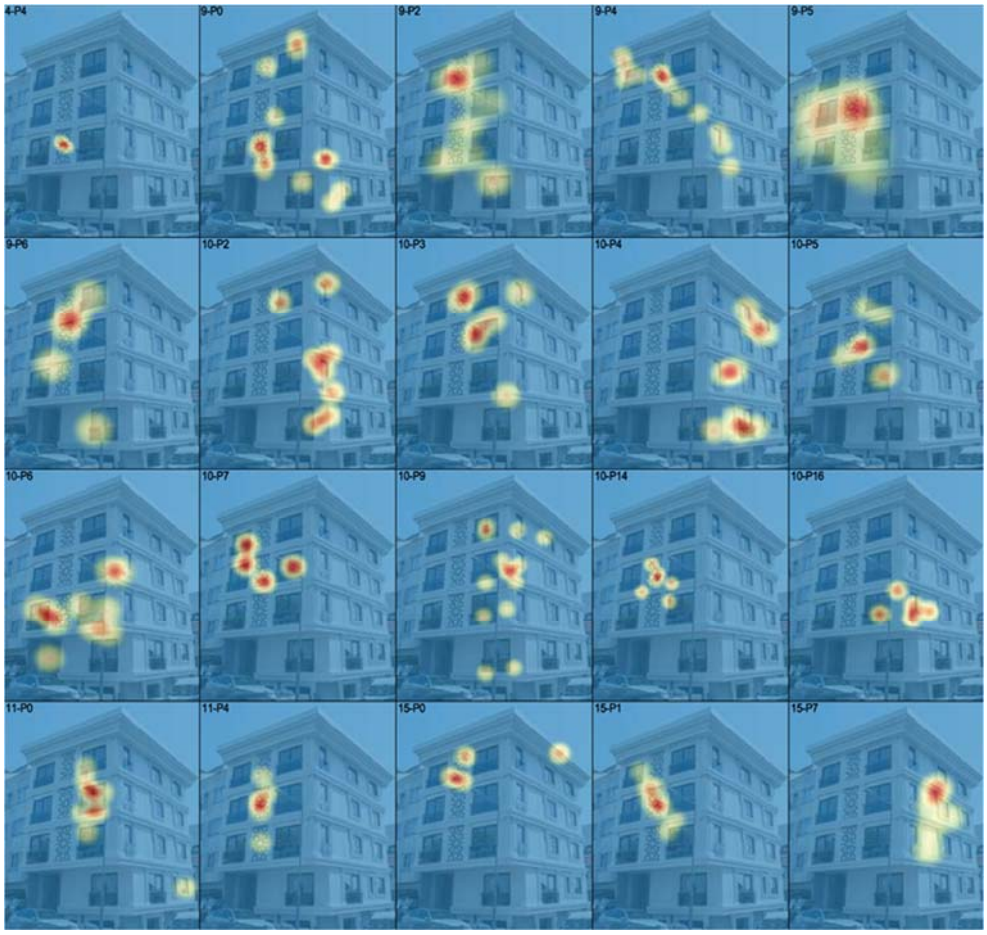
Q: Question, **P**: Participant, **0**: Not Heritage, **1**: Heritage, **MARCH**: Master students of Architecture, **BARCH**: Bachelor students of Architecture, **SOC**: Students of Social Sciences

The experiment suggests that there are new potential indicators, which can be applied in the model. The first indicator, which is acknowledged by the experiment, is the interventions that were added to the constructions subsequently. According to the results of the analysis of the data, participants had a tendency to fixate on the parts of buildings, which were added postliminary or which demonstrated the contemporary living norms. Eighty percent (80%) of the participants who have specifically focused on these interventions evaluated the artefacts as not being cultural heritage (**Pic. 27.**).



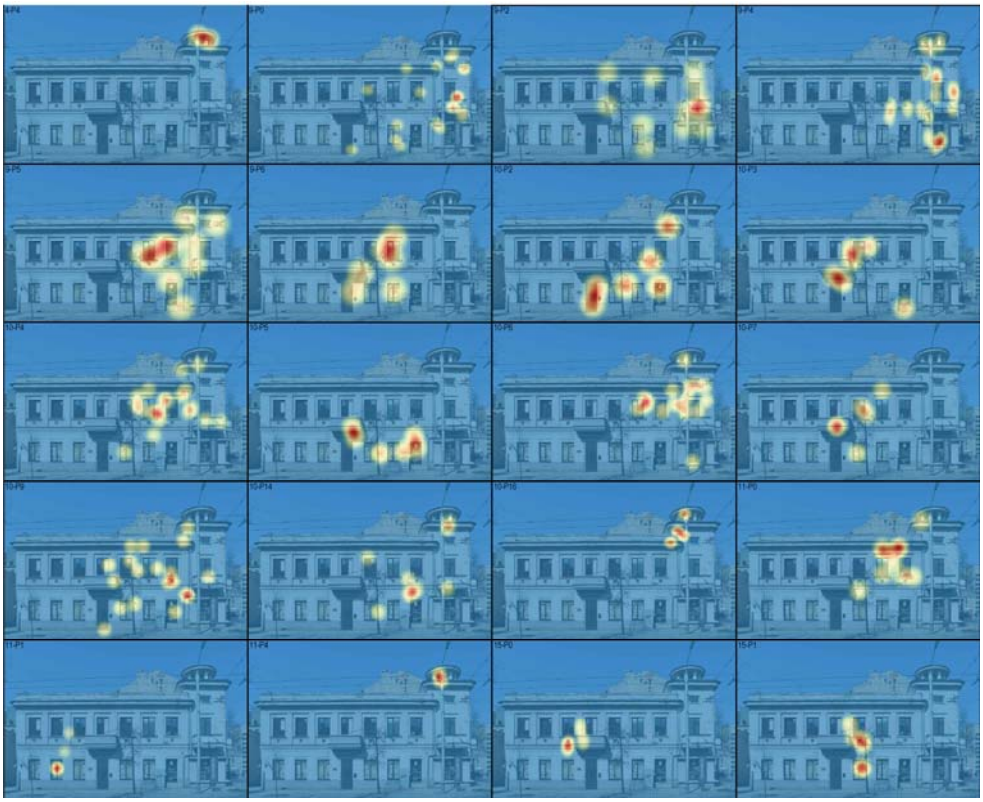
Pic. 27. An example sheet of the heatmap produced by the eye tracking experiment, which demonstrates the fixations on the intervention

However, if there are ornaments on the surface, the impact of the interventions is lower, and in most cases, ornaments are strong stimuli for the participants: 91% of the participants who were fixated on the ornaments evaluated the buildings as cultural heritage. Furthermore, even though one of the buildings, which was demonstrated, had no architectural value, no patina and no dark colour, 67% of the participants still decided that the building is heritage, since it contained ornaments. These findings validate the results of the first experiment concerning the usage of ornament as an indicator, and it demonstrates that ornaments are more dominant as an indicator when it is compared with the other indicators used in the model (**Pic. 28.**). Therefore, interventions are considered to be one of the essential indicators as well, which need to be added into the design of the model, however, in a more passive manner.



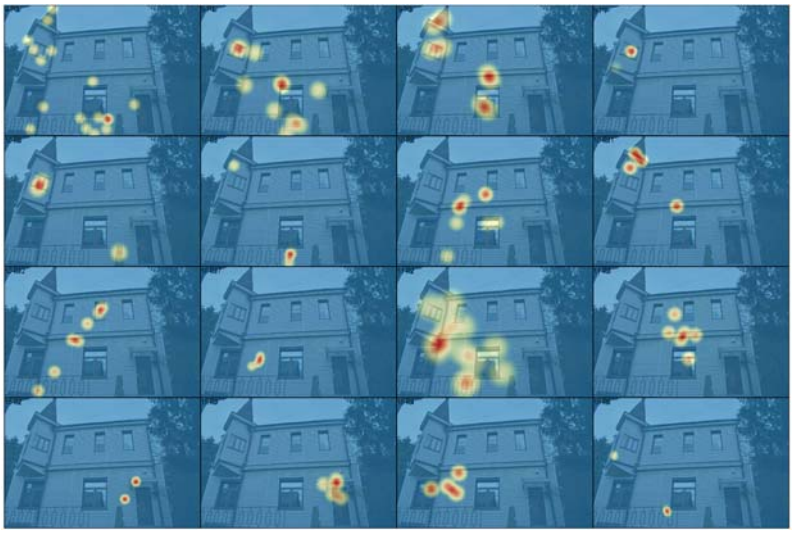
Pic. 28. An example sheet of the heatmap produced by the eye tracking experiment, which demonstrates the fixations on the ornaments

The second indicator, which was determined by the eye-tracking experiment, is the expressive architectural elements, such as pediments, towers, portholes, rounded corners or curves. According to the analysis, participants assessed 87% of the buildings as cultural heritage when they had their gaze fixated on these elements. Therefore, this characteristic of the façade is used as an indicator in the development of the model (**Pic. 29.**).



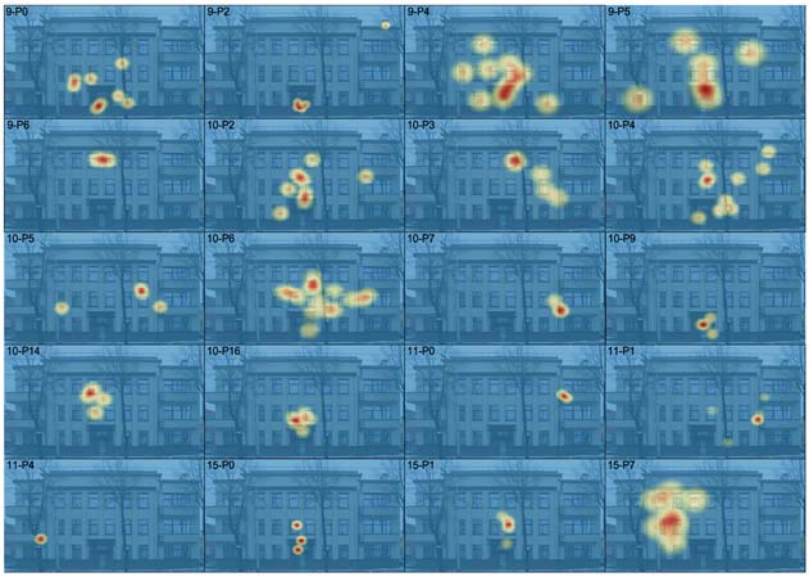
Pic. 29. An example sheet of the heatmap produced by the eye tracking experiment, which demonstrates the fixations on the expressive architectural elements

When the gaze of the participants was fixated on the surface of the buildings, which are covered with plain plaster, 83% of the participants determined the buildings as not cultural heritage. Furthermore, even though one of the buildings contained an expressive architectural element, such as tower, 63% of the participants evaluated the building as not cultural heritage, since the building's façade was covered with plastic siding. In that regard, the eye tracking experiment validated another indicator of the survey of the model, which is material; however, it has been demonstrated that material can be regarded as a dominant indicator when it is compared with the expressive architectural element, colour and patina (**Pic. 30.**).



Pic. 30. An example sheet of the heatmap produced by the eye tracking experiment, which demonstrates the fixations on the material

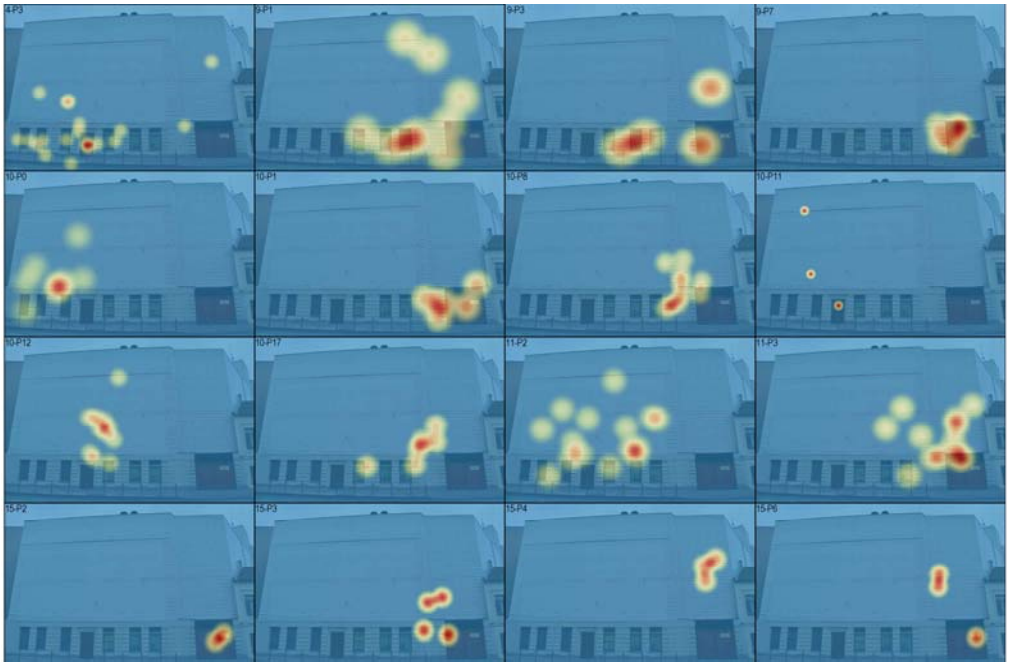
Furthermore, line was found to be more dominant when it is compared with colour and patina by the eye tracking experiment, since 90% of the participants evaluated the building, which was demonstrated to them, as heritage, even though it did not contain patina and had a bright colour (**Pic. 31.**).



Pic. 31. An example sheet of the heatmap produced by the eye tracking experiment, which demonstrates the fixations on the façade

According to the results of this experiment, indicators were divided into two categories. The first category contains indicators that are called “Active Indicators”, and the articles which were placed in this category are ornament, line and material. The second category contains expressive architectural elements, colour, interventions and patina as indicators, and these are called “Passive Indicators”. Even though these indicators are as valuable as the active indicators in the decision-making process of the participants, in most cases, they cannot establish a direct impact solely. In that regard, these indicators were determined to be used more passively in the course of the model.

The analysis of the heatmaps demonstrates that when there is a different element on the façade of the building, such as an ornament, banding on the plaster, pediment, curved lines or a tower, the fixation of the participants move towards these areas that are giving unique characteristics to the surface. Furthermore, differently shaped windows such as porthole windows or corner windows or architrave on the entrance door attract the attention of the observer as well. However, when the façades contain blank surfaces, most of the gaze does not scan these areas (**Pic. 32.**). Therefore, this finding can give valuable information regarding the appraisal of the Modern Movement heritage.



Pic. 32. An example sheet of the heatmap produced by the eye tracking experiment, which demonstrates the fixations on the blank walls

The research, which was performed by the usage of the eye tracking technology, provided important results for the experiment and the development of the model in regard of validating indicators. However, it should be noted that achieving consensus on the indicators does not prove that the indicators can be generalised, and they are true for every individual. Studies, which focus on the perception of human beings, can contain various constraints, which affect their decision-making process. In that regard, only the indicators that are decided by both experiments and the literature reviews are applied in the design of the model for revealing insight for the specialists in the establishment of adaptive re-use strategies.

3.3.4 Development of the Model [31]

According to the results of both of the performed experiments, the indicators, which have the most substantial impact on people's perception of the building as heritage, are improved and developed as follows:

Active Indicators:
1.Ornament, 2. Lines (Vertical and Horizontal), 3. Material/Texture.

Passive Indicators:
1. Interventions, 2. Patina, 3. Colour, 4. Expressive Architectural Elements.

In the developed model, seven indicators in total are used for the impressions, and the score is defined by the reduction of 20%, 10% and 0% for the active indicators and by the reduction of 10%, 5% and 0% for the passive indicators of the total 100%, depending on the presence of the feature.

The reduction method for the ornaments of the buildings is retained the same way as it was in the first version of the model, and they have been measured by the ratio of the façade surface covered with ornaments related to the proportion of the overall façade of the buildings. A scale has been developed: the buildings that have the ratio of ornament to the proportion of the whole façade more than 15% received the reduction of 0%, a ratio, which is less than 15%, received the reduction of 10%, and buildings with no ornament received 20% reduction. Horizontal or vertical bandings or streamlines on the plasters are calculated as ornaments, since they are decorative elements, and they are not related to the structural integrity.

The lines on the façade have been measured by the ratio of them to the proportion of the façade, and the reduction method was as well kept in the same way as it was in the first version of the model. The ratio has been calculated by the

[31] This subchapter contains information from the articles of the author with the details below: Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas.

comparison of the multiplication of quantity and the length of both horizontal and vertical lines.

A scale has been developed: the buildings with the dominant characteristics of vertical lines received 0% reduction, buildings which have interim domination received the reduction of 10%, and the buildings which have dominant attributes of horizontal lines received 20% reduction. Maximum 15% difference between the vertical and horizontal lines was disregarded and calculated as interim.

The establishment of the scale regarding the usage of material was retained as well, and the buildings which have traditional materials (wood, stone, brick) on their façade received 0% reduction, the buildings which have stone imitation formed by plaster on the façade received 10% reduction, and the buildings which have plaster received 20% reduction.

The interventions, which can be detected on the façade of the buildings, were used for the improvement of the model and gained reduction rates in the developed model. Buildings with no interventions received 0% reduction. Buildings, which have the ratio of interventions to the proportion of the whole façade less than 15%, received the reduction of 5%, a ratio which is more than 15% received the reduction of 10%.

The scale of the buildings which contain patina is developed in a way that the buildings which have more than 30% of patina received 0% reduction, the buildings which have less than 30% of patina received 5% reduction, and the buildings which do not contain patina on their façades received 10% reduction.

The scale of the colour on the façade is developed as follows: the darker colour received 0% reduction, the buildings which have neutral or interim colour (including white) received 5% reduction, and the buildings with brighter colours received 10% reduction. The buildings which have two different colours received 5% reduction as well.

The scale of the expressive architectural elements is developed similarly to the other passive indicators. Buildings that have expressive architectural elements with a ratio which is more than 15% received the reduction of 0%, while the buildings which have the ratio of expressive architectural elements to the proportion of the whole façade less than 15% received the reduction of 5%, and the buildings with no expressive architectural elements received 10% reduction (**Table 8.**).

Table 8. Reduction rates for the revised CHPP model indicators

ACTIVE INDICATORS	ORNAMENT	X= ORNAMENT / WHOLE FAÇADE	X > 15/100	X ≤ 15/100	X = 0
		REDUCTION RATE	0%	10%	20%
	LINE	X= VERTICAL / HORIZONTAL	X = V > H	X = V = H	X = V < H
		REDUCTION RATE	0%	10%	20%
	MATERIAL	MATERIAL TYPE	STONE BRICK WOOD	STONE IMITATION BY PLASTER	PLASTER
		REDUCTION RATE	0%	10%	20%
PASSIVE INDICATORS	INTERVENTIONS	X= INTERVENTION / WHOLE FAÇADE	X = 0	X ≤ 15/100	X > 15/100
		REDUCTION RATE	0%	5%	10%
	PATINA	X= PATINA / WHOLE FAÇADE	X > 30/100	X ≤ 30/100	X = 0
		REDUCTION RATE	0%	5%	10%
	COLOUR	COLOUR TYPE	DARKER COLOUR	NEUTRAL INTERIM WHITE	BRIGHTER COLOUR
		REDUCTION RATE	0%	5%	10%
	EXPRESSIVE ARCHITECTURAL ELEMENTS	X= E.A.E / WHOLE FAÇADE	X > 15/100	X ≤ 15/100	X = 0
		REDUCTION RATE	0%	5%	10%

According to all these changes, the model and the results are revised (**Table 9.**).

$\Sigma_{CHPP} = Total\ Cultural\ Heritage\ Perception,\ \ \Sigma_R = Total\ Reduction,$

$R_M = Material\ Reduction, R_O = Ornament\ Reduction, R_P = Patina\ Reduction,$

$R_C = Colour\ Reduction,\ \ R_L = Line\ Reduction,\ \ R_I = Intervention\ Reduction,$

$R_{EA} = Expressive\ Architectural\ Element\ Reduction,\ O = Heritage\ Obsolescence.$

$O = \Sigma_{CHPP} = 100 - \Sigma_{R,} \qquad \Sigma_R = R_M + R_O + R_P + R_C + R_L + R_I + R_{EA},$

$Score_0 = \Sigma_{CHPP} < 0.5\ , \qquad Score_1 = \Sigma_{CHPP} \geq 0.5\ .$

Table 9. Results of the buildings by the revised CHPP model

ID	LOCATION	MATERIAL	ORNAMENT	LINES	INTER VENTION	PATINA	COLOUR	EXPRESSIVE ELEMENT	CH	TOTAL REDUCTION	CHPP	SCORE	QUESTION. SCORES	O_8 FOR ARP	QUESTIONNAIRE RESULTS
1	DE	0%	20%	20% V:40, H:90	0%	5%	10%	5%	1	60%	40%	0	0	0.08	YES 36% NO 64%
2	LT	0%	20%	0% V: 220, H:180	10%	0%	0%	5%	1	35%	65%	1	1	0.13	YES 76% NO 24%
3	DE	20%	20%	20% V:24, H:48	0%	10%	5%	10%	1	85%	15%	0	0	0.03	YES 14% NO 86%
4	LT	10%	0%	10% V:70, H:72	5%	0%	5%	0%	1	30%	70%	1	1	0.14	YES 91% NO 9%
5	DE	20%	20%	10% V:36, H:40	10%	10%	10%	5%	1	85%	15%	0	0	0.03	YES 20% NO 80%
6	TR	20%	0%	0% V:330, H:108	0%	10%	0%	0%	1	30%	70%	1	1	0.14	YES 87% NO 13%
7	TR	20%	10%	0% V:90, H:25	0%	5%	5%	0%	1	40%	60%	1	1	0.12	YES 62% NO 38%
8	TR	20%	20%	20% V:9, H:37	10%	5%	10%	5%	1	90%	10%	0	0	0.02	YES 13% NO 87%
9	TR	20%	0%	0% V:96, H:32	0%	10%	5%	0%	0	35%	65%	1	1	0.13	YES 55% NO 45%
10	LT	20%	10%	0% V:266, H:96	0%	0%	0%	0%	1	30%	70%	1	1	0.14	YES 76% NO 24%
11	TR	20%	0%	0% V:145, H:76	0%	10%	5%	0%	0	35%	65%	1	1	0.13	YES 54% NO 46%
12	LT	20%	10%	10% V:86, H:88	5%	5%	5%	5%	1	60%	40%	0	0	0.08	YES 40% NO 60%
13	DE	20%	20%	0% V:54, H:13	0%	10%	10%	5%	1	65%	35%	0	0	0.07	YES 32% NO 68%
14	LT	20%	10%	10% V:102, H:108	10%	5%	5%	5%	1	65%	35%	0	0	0.07	YES 37% NO 63%
15	DE	20%	20%	0% V:56, H:40	0%	10%	10%	10%	1	70%	30%	0	0	0.06	YES 48% NO 52%
16	LT	20%	0%	0% V:152, H:45	5%	5%	5%	0%	1	35%	65%	1	1	0.13	YES 84% NO 16%
17	TR	20%	20%	20% V:20, H:88	0%	5%	0%	0%	1	65%	35%	0	0	0.07	YES 39% NO 61%
18	TR	0%	20%	20% V:54, H:96	0%	10%	5%	0%	0	55%	45%	0	0	0.09	YES 45% NO 55%
19	LT	20%	20%	0% V:600, H:225	0%	0%	0%	0%	1	40%	60%	1	1	0.12	YES 63% NO 37%
20	LT	0%	0%	20% V:27, H:52	0%	5%	5%	0%	1	30%	70%	1	1	0.14	YES 78% NO 22%
21	TR	20%	20%	20% V:24, H:41	10%	5%	10%	0%	1	85%	15%	0	0	0.03	YES 23% NO 77%
22	TR	20%	0%	10% V:67, H:69	10%	10%	5%	0%	0	55%	45%	0	0	0.09	YES 43% NO 57%
23	TR	20%	20%	10% V:102, H:87	10%	5%	0%	10%	0	75%	25%	0	0	0.05	YES 16% NO 84%
24	DE	20%	20%	10% V:54, H:51	5%	10%	5%	5%	1	75%	25%	0	0	0.05	YES 19% NO 81%
25	LT	20%	10%	20% V:100, H:260	5%	5%	0%	0%	1	60%	40%	0	0	0.08	YES 44% NO 56%
26	LT	20%	0%	10% V:102, H:99	0%	0%	5%	0%	1	35%	65%	1	1	0.13	YES 64% NO 36%
27	TR	0%	0%	0% V:99, H:51	0%	10%	0%	0%	1	10%	90%	1	1	0.18	YES 95% NO 5%
28	DE	20%	20%	10% V:67, H:70	0%	10%	10%	0%	1	70%	30%	0	0	0.06	YES 28% NO 72%
29	LT	20%	20%	10% V:75, H:73	10%	10%	10%	0%	1	80%	20%	0	0	0.04	YES 16% NO 84%
30	LT	20%	10%	10% V:100, H:115	10%	5%	5%	10%	1	70%	30%	0	0	0.06	YES 17% NO 83%
31	DE	20%	20%	20% V:36, H:90	0%	10%	5%	5%	1	80%	20%	0	0	0.04	YES 30% NO 70%
32	LT	20%	0%	0% V:175, H:68	10%	5%	0%	0%	1	35%	65%	1	1	0.13	YES 51% NO 49%
DE: GERMANY LT:LITHUANIA TR:TURKEY															

Application Opportunities of the Model with the Analysis of the Impact of Memory

The CHPP model, which is explained in this research, provides a moderate method for calculating the conceivable perception of society towards cultural heritage. It is a conceptual framework for determining the potential, and as such, the capacity of the buildings to be socially perceived as heritage can be qualified. When people perceive the building as worth preserving, it is more likely that they would be involved in the process, and furthermore, the buildings would attract people and that would provide status, sustainability and the image for the city. It is possible to invent different frameworks to address this matter. However, the one proposed in this research produces results that are considered reasonable and reflective of practice. It works with a range of indicators within identifiable limits, which enables to establish a score for the building.

The buildings, which received score 1, have a higher potential for the perception of the cultural heritage by the society. Therefore, by combining this model with the ARP model of Craig Langston, the adaptive reuse potential of the buildings and their useful physical life can be calculated by including its invisible social context. Even though the decision-making process for the adaptive re-use can be influenced by other factors, which are related to the financial issues, contemplating the social context might provide a prediction for the usage and appreciation of the structure after the adaptive reuse is completed. Furthermore, it can have an impact on the adaptive re-use strategies regarding the interaction with society. A model like CHPP can help to obtain data on the perception of the society, which should not be omitted in the consideration and decision-making process of adaptive re-use. Therefore, the usage of the model can help to establish specific adaptive re-use strategies towards cultural heritage, especially to heritage, which is problematic, such as the Modern Movement heritage.

According to the experiments, which were performed in this research, there are different factors, which are affecting the perception of people. The indicators, which were used for implementation in the CHPP model, reveal the sensitivity towards these indicators.

Implementation of the Model on the Modern Movement buildings as a pilot study [32]

The model was implemented by a pilot study on eight buildings on Kestucio Street in Kaunas, Lithuania, which contains a notable concentration of the Modern Movement buildings (**Pic. 33., Pic. 34**.).

[32] This subchapter contains information from the articles of the author with the details below: Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas.

Pic. 33 The view of the segment of Kestucio Street [prepared by the author]

Pic. 34. The buildings on the selected segment of Kestucio Street [photographs taken by the author]

As it can be noted in **Table 10.**, according to the properties of the buildings, each building achieved a different reduction rate. Building number 1 managed to obtain the highest score on the CHPP model by receiving 30 percent reduction and 70 percent CHPP due to the strong architectural language that is used on its façade. However, building number 3 achieved the lowest score by receiving 80 percent of reduction. Building number 2 received 65 percent, number 4 received 75 percent, number 5 received 40 percent, number 6 received 55 percent, and numbers 7 and 8 received 35 percent of total reduction. As a result, in accordance with the model, four buildings out of eight attained score 0, which suggests that these buildings are less likely to be perceived as cultural heritage by the people.

Table 10. Assessment of the buildings by the CHPP model

ID	LOCATION	MATERIAL	ORNAMENT	LINES	INTER VENTION	PATINA	COLOUR	EXPRESSIVE ELEMENT	CH	TOTAL REDUCTION	CHPP	SCORE	O_8 FOR ARP
1	LT	20%	10%	0%	0%	0%	0%	0%	1	30%	70%	1	0.14
2	LT	20%	10%	10%	0%	10%	10%	5%	1	65%	35%	0	0.07
3	LT	20%	20%	10%	10%	5%	5%	10%	1	80%	20%	0	0.04
4	LT	20%	20%	0%	10%	5%	10%	10%	1	75%	25%	0	0.05
5	LT	20%	0%	0%	5%	0%	10%	5%	1	40%	60%	1	0.12
6	LT	20%	20%	0%	10%	0%	0%	5%	1	55%	45%	0	0.08
7	LT	20%	0%	0%	0%	5%	5%	5%	1	35%	65%	1	0.13
8	LT	20%	0%	0%	5%	5%	5%	0%	1	35%	65%	1	0.13

When the general characteristics of the buildings, which achieved lower score, are analysed, it is possible to state that none of these buildings have a distinctive expression or an architectural language, except building 2, which contains porthole windows that are commonly recognised in the Modern Movement buildings. However, except building number 3, all of the other buildings are cultural heritage, which reflect the period of interwar in Kaunas. The building, which got the lowest score, is the building, which is de facto not a cultural heritage. Therefore, if there were prepared an adaptive re-use project for this building, because the building is not heritage or perceived as heritage by people, the project could have the possibility to be more flexible in regard of design. When the results are added to the formula of the model of Craig Langston as O_8, it can improve the calculation of the useful life of the building; therefore, it would give a more solid idea to the institutions who are involved in the process of adaptive re-use project. However, other buildings, which achieved low scores, are cultural heritages. Therefore, these buildings require a special preservation and adaptive re-use strategies in the course of protection.

3.4 Adaptive Re-Use of the Modern Movement Heritage

Recent discourse on heritage conservation is often interpreted as an experimental, creative process (Otero-Pailos, 2016; Desilvey, 2017), a kind of cultural laboratory. According to Professor Maria Gravari-Barbas (2014), “there are two possible scenarios for Europe: to become a theme park (not wanted) or a heritage laboratory (for which global expertise is needed)”. In the contemporary period, the conservation and protection of historical buildings have succeeded to evolve into a well-defined technical proficiency and agenda. In most cases, it started to become a wide-ranging discipline by itself. Specifically, in the 20th century, the impact of modernisation in science, the economy, politics and social life had a reflection on the approaches towards cultural heritage, which derived from both national and international organisations’ attention and support regarding the legal aspects of conservation, which established the participation of the state authority in the process. As Geoff Rich (2017:117) states, the philosophy of the conservation rationale is moderately clear, and most of the time, it is focusing on preserving the historic fabric

as the central value and interest. However, it is not always the case or the approach, which can be implemented when it is applied to the Modern Movement heritage.

As Wohlleben (1990:19) notes, according to Gottfried Kiesow, the discussion on the conservation and preservation of the Modern Movement heritage started in 1975 due to the debate on Hellerhof Siedlung in Frankfurt, which was designed by Mart Stam. Therefore, until the second half of the 20th century, the artefacts, which were constructed in the recent past, were not identified as cultural heritage because of their age values. However, especially the decisions, which were induced regarding unconvertable changes or the demolition of these artefacts, affected the approaches towards the preservation and rehabilitation of the Modern Movement heritage, which developed different techniques regarding the adaptive re-use of this style as well. However, it is still a debatable and comprehensive topic in preservation and conservation community.

According to Cunningham (1998:3), over recent decades, the Modern Movement artefacts have been more at risk, when compared with the built heritage of any other period in history. Furthermore, as it has been stated in the introduction of the 10th DOCOMOMO (DOcumentation and COnservation of buildings, sites and neighbourhoods of the MOdern MOvement) Conference Proceedings (2008: xv), the challenge about the artefacts of the Modern Movement era is the difficulty to maintain the architectural creations and the intentions of them such as the continuously changing concept of it. Therefore, they require a distinctive approach, which can revalue the manifestations and redefine the meanings of it. The buildings of this era have their primary focus on flexibility and functionality. Furthermore, it is open to changes and experiments. However, as Maxwell (1998: xiii) states, specifically, the documentation and conservation of the Modern Movement architecture develops a paradox, when it becomes old, because it proclaimed the rejection towards tradition and old itself. The Modern Movement focused on exploration and experimentation and supported the idea of progression, which made it a movement rather than merely a style. Therefore, these peculiarities might establish an aporia while preserving them; however, it still contains all the essential ingredients, which makes it possible to adapt to new conditions. Nonetheless, an appropriate adaptive re-use strategy for the artefacts of the Modern Movement is still ambiguous.

Nevertheless, one of the colossal problems with the adaptive re-use of the Modern Movement artefacts is the new regulations in building design. Nowadays, the performance value of the buildings, such as energy sustainability, is an essential quality of the buildings; however, most of the buildings that were constructed in this period do not meet this requirement. The large glass areas and materials, which do not contain thermal efficiency of the structure, affect the energy sustainability. Therefore, even though the buildings perform well in their own specifications, in the adaptive re-use, it yields a challenging process to create a project, which is blending the obligations and the original design. Furthermore, the materials, which have been used in the Modern Movement buildings, tend to be not as durable as the buildings of the previous era. The use of weak concrete, alumina cement and synthetic paints are commonly seen in this period. Moreover, experimental and not well-determined

materials were implemented in the designs, which resulted in a shorter lifespan of the structures. The materials, which were used, are susceptible to degradation and decay, which require different intervention methods for their long-term protection. Therefore, as it has been stated in the article 2.5 of Madrid Document [33], this heritage requires regular maintenance and long-term maintenance planning that it could be protected without the need of huge conservation costs.

Another problem is the quantity of the artefacts produced during this era. According to Carmichael (2012:42), there are approximately 300 surviving works of only Frank Lloyd Wright alone. Furthermore, as De Jonge (2017:62) states, more buildings were constructed in the 20th century compared to the amount of the buildings constructed during all prior periods. Therefore, assigning new uses for these buildings, which would be feasible and suitable, becomes disputing. In addition, the artefacts of the Modern Movement are not merely limited to the iconic buildings, but there are innumerable examples in the residential and industrial neighbourhoods. Therefore, maintaining these buildings and re-using them as museums or tourist attractions is not economically feasible.

Furthermore, the devoted connection in between the form and the function in the Modern Movement buildings as well induces the interventions to be limited regarding this heritage. In the process of rehabilitation of the Modern Movement buildings, the primary consideration should be the maintenance of the original use. If this approach would not be possible, and the original use is not convenient anymore, it is essential to apply a new program, which is compatible with the original use of the building.

However, the most problematic component of the adaptive re-use of the Modern Movement buildings is the fact that the buildings from this era lack the perceived inherent value and memento value for society. The buildings from prior periods tend to have an authentic stance, although the buildings with the Modern Movement expression neither contain any remark of cultural memory nor are determined as historical documents by the people. Most of the residential building from prior periods contain the characteristics of vernacular architecture. Therefore, people can associate themselves with architecture, and furthermore, it is suitable for their usage and daily life. In that regard, it is possible to state that the Modern Movement residential buildings are not native to their users. However, they contain significance. Thus, adaptive re-use of the structures from this era is confusing for the academics and practicians as well. As a result, researching or applying strategies to these artefacts have the need for the establishment of new tools and methods and different identification and selection criteria.

DOCOMOMO International, which is one of the independent organisations, has undertaken the mission of establishing criteria and documenting specifically Modern Movement artefacts. In its criterion standards, the organisation tries to emphasise the

[33] The Madrid Document, Article 2.5, ICOMOS, 2011.

technological, social, artistic and aesthetic merit and referential value, and integrity of the artefacts of this era. Additionally, the increasing number of the Modern Movement buildings that are protected and registered by UNESCO establishes an impact. However, while recognition of organisations and commissions such as DOCOMOMO and UNESCO can help to protect the buildings from demolition and exploitation, it might not be enough for the communities to acknowledge the value of these artefacts and promote them for cooperating on their safeguarding. Furthermore, these artefacts still need to be guarded against the effects of time, weather, inappropriate repairs and management. As a result, adaptive re-use is still a vital intervention and demands to be adequately implemented by experts and the participation of the society who are living in that area.

Over the last decade, the involvement of communities has become a crucial approach and a strategy in the preservation, management and promotion of cultural heritage. In 2007, the World Heritage Committee expanded its existing four "C points" of strategic objectives, which need to be implemented in the process of preservation of the World Heritage, by adding the fifth element, which is the Communities (the other four elements are Credibility, Conservation, Capacity and Communication).[34] Since then, the role of communities in the safeguarding of cultural heritage became essential and was adopted more regularly. However, the contradiction between the words Modern and Heritage continued its awry interpretation in society regarding their perception of the Modern Movement heritage.

According to the Burra Charter of ICOMOS (1999), "Conservation, interpretation and management of a place should provide for the participation of people for whom the place has special associations and meanings, or who have social, spiritual or other cultural responsibilities for the place"[35]. Therefore, the aim of safeguarding the cultural heritage is primarily about society itself. It can accompany the establishment of the direct and indirect benefits in the daily life of the inhabitants; however, the involvement of the community can provide opportunities for engagement for the society with their own cultural memories. As Mesh and Manor (1998:505) state, people who have higher place attachment contribute to social and political activities more, and they try to protect the social and physical features that characterise their neighbourhoods more. Therefore, it can raise awareness about the values and significance by increasing pride and appreciation. As a result, community involvement can benefit both cultural heritage and societies (**Chart 14.**).

---

[34] United Nations Educational, Scientific and Cultural Organization, Convention Concerning the Protection of the World Cultural and Natural Heritage World Heritage Committee, Thirty-First Session Christchurch, New Zealand, 2007.

[35] The Burra Charter, Article 12, ICOMOS, Australia, 1999.

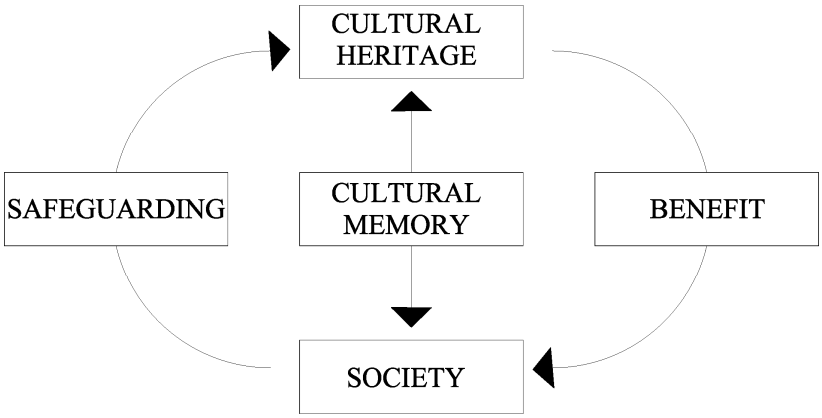


Chart 14. Correlation between Cultural Heritage and Society

Moreover, community involvement can help practitioners to achieve their goals by the support of the society, and it can affect the development of policies in the cultural heritage management of governmental institutes. The policies that are created with the support of the society will ensure that the needs and interests of local communities are reflected and linked to the protection strategies. Recognising and understanding the main local needs and interests, which are affecting directly or indirectly the cultural heritage and the area where it is situated, establishes a connection between the heritage and the society. When people connect socially, culturally or economically with their heritage, it is more likely that they will show a stronger commitment and take responsible actions for the proper use, maintenance and promotion of the heritage, and it would establish a willingness to engage. Therefore, the participation of the community requires to be addressed carefully in the process of heritage management.

According to the ladder of participation for heritage management prepared by Chan (2016:15), the first step in the process of heritage management is *'education'* or *'promotion.* In this step, experts and government educate the public about the values and significance of the heritage. This strategy aims to raise public awareness for the preservation of cultural heritage. Therefore, this step is one of the most crucial steps of the heritage management, since without the acknowledgement of the community, it is arduous to achieve long-term preservation. Moreover, especially in the preservation and the heritage management of the Modern Movement artefacts, the impact of the education can be even more critical, because the knowledge about these artefacts in the society is moderately minor.

As Fernandes (2016:923) states, Le Corbusier's purist ideas in the style of the Modern Movement generated a clash between the aesthetics produced by rationalist ideas and the taste of the dwellers in the housing programs, which established the question of cultural and anthropological relativism and the importance of the participation of future dwellers of the housing projects in design decisions. Therefore, the structures, which were built in this period, did not respond to the needs of the

existing or future users. As a consequence, most of the time, the Modern Movement could not manage to establish a sense of attachment for the people. Furthermore, this architectural expression and its heritage resembled to be an oxymoron, which resulted in the artefacts of this era not to be appreciated by many people. However, this style has specific characteristics such as bringing something new into the architectural sphere, but at the same time, to the daily life of the people and offering people a unique built environment rather than depicting what already exists. Therefore, the Modern Movement has significant aspects, which can be taught by educating society. In that regard, the role of the government and the organisations are moderately influential for these heritages. They need to adopt a specific strategy for the involvement of the society and help them to understand and internalise the cultural heritage of this era.

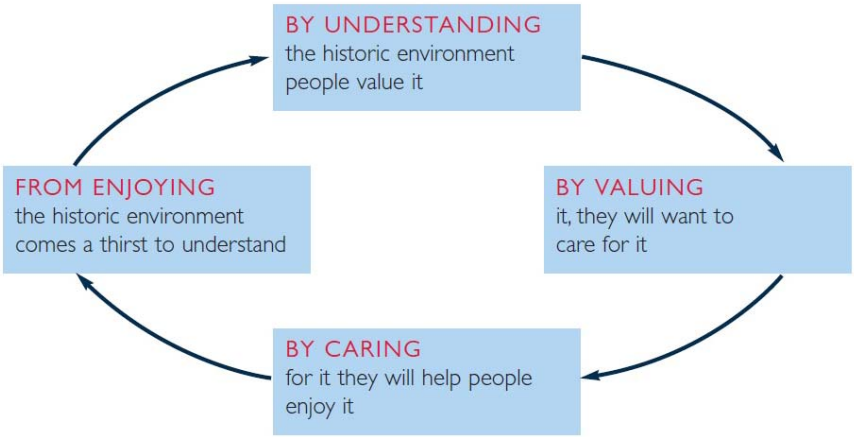
A successful preservation process is impossible as a top-down initiative and should involve different public and private institutions as well as individual community members. The strategy for the involvement of society and promotion of Modern Movement heritage can be detected in Kaunas, Lithuania, by the application of the program called “Modernism for the Future”. The programme is aimed to create a sustainable platform to develop the heritage community in Kaunas, and it launched a unique initiative “Kaunas Modernism 360/365”. The platform provided a virtual and actual meeting space where representatives of various fields meet together to engage in discussion, conduct idea workshops, debate on art and culture and establish a strategy for the conservation, interpretation and promotion of the modernist heritage. The active community, which is the sum of this strategy, managed to create a growing diversity of narratives in the city, and people started to focus on their personal definitions of value, personal memories and emotional attachments regarding the Modern Movement heritage. Concentrating on the personal definition of the value is an integral part of understanding heritage such as the Modern Movement, which does not contain the age value.

However, even though not containing the age value can cause an impact on the objective appraisal of these artefacts by society, this characteristic can be used simultaneously as a strength as well. The freshness of these artefacts can provide an opportunity for discussing the history of these buildings with the people who were directly involved in the creation of those structures or had the possibility to be the first users. Interviewing a building's original client or user can reveal additional clues to the rationale of the form and materials of the structure. Furthermore, it can give information about the settlement and the environment. Therefore, it is possible to state that the approach, which contains the community involvement, might be even more essential in the heritage management of the Modern Movement artefacts.

According to Thurley (2005:26), the approach towards cultural heritage can be achieved by a cycle that would make the past a part of the future. In the cycle that he has created, he emphasised how understanding, valuing, caring and enjoying are interconnected and how all these aspects can affect each other (**Pic. 35.**).

It is as well possible to implement this method in the cultural heritage of the Modern Movement. However, the approach towards the heritage that involves the society should not be about dictating the outcomes of a decision. A considerable

approach requires enabling people in the process, and it should be more about the discussion and explanation of the merit and establishment of the understanding for people. Furthermore, it should inform the society about the intended achievements. Since 1990s, this kind of approach has been used increasingly and has been accepted to some extent in the heritage management of immovable heritage. However, its practical implementation is ambitious most of the time, and the application of it can be tricky.



Pic. 35. Heritage Cycle of Simon Thurley, 2005

In the case of the Modern Movement heritage, implementing memory points, which can be used for both providing and receiving information around the surroundings, can be valid. Designing memory points as spaces where people can spend time and look through books and leaflets might make these points more attractive to the people. Furthermore, establishing various strategies for different age groups is essential as well. Therefore, the implementation of such approach can help to use the community involvement both passively and actively in the management of the Modern Movement heritage.

In the recent years, society participation has become a more important element in the evaluation and preservation process of cultural heritage, and when people cannot relate to the construction or the environment, the process for achieving preservation becomes more difficult, especially when the Modern Movement architectural objects are involved. Educating people about the Modern Movement could have a noticeable impact on the perception of it, moreover, on the preservation of these heritages. Therefore, adoption of the approach, which emphasises the importance of this architectural style in architectural history with all of its aspects and impact on social life, might be a way to encourage people to understand its value.

A holistic approach for the adaptive re-use can derive continuity and sustainability to the buildings, which have lost their function and the environment by exposing the potential of the buildings. In that regard, adaptive re-use can be an

essential strategy towards cultural heritage buildings; furthermore, it can be fundamental for preserving the image of the city. However, finding an appropriate function for the cultural heritage building can be regarded as one of the most problematic issues in the process due to having numerous indicators, which can affect the process. Decision makers might need to consider a set of criteria, such as compatibility with the original usage, reversibility of the interventions, which would not affect the value of the structure and, of course, the perception of the society. Particularly, if there is a paucity of the participation of the society in the evaluation of cultural heritage, it might result in heritage buildings not being appreciated by the people, even before providing a new function to the buildings. Therefore, approaches, which are considering multicriteria towards the cultural heritage, are essential for the establishment of the strategy in the adaptive re-use for being able to involve all the different actors. To this end, various models are used by the experts for the establishment of a successful adaptive re-use strategy.

The proposed model is an attempt, which is applied by a pilot research to provide information on the perception of the society and how perception is affected by various indicators; therefore, the invisible social context can be measured. The indicators in this research were determined by two different experiments, which were applied to the Modern Movement façades. Furthermore, the model was tested by a survey and, at the same time, by implementing to a segment of a street in Kaunas. The implementation of the model suggested that the indicators, which were chosen for the model, and the model itself could be stated as accurate. The results, which can be achieved by the model, can be easily added to the Adaptive Re-use Potential model by Craig Langston; therefore, the results can provide more precise estimations for the useful life of the buildings, specifically the structures, which contain a cultural heritage label.

A model like the CHPP can identify the requirements of the people, which can help the decision-making process of the adaptive re-use. The society and their perception are important components in preservation, and people can create a crucial impact on the process if they participate. However, it is possible to state that different society's perception or the understanding of the heritage might vary depending on the cultural memories and the characteristics of that society. In that regard, the model, which is created in this dissertation, is suitable for modification, and it can be extended according to the different characteristics of various societies or according to the different architectural expressions if there are specific characteristics, which can be detected as indicators that affect people's impressions. (**Chart 15**.). Therefore, it is possible to state that the model has a potential for improvement.

Furthermore, identifying the factors, which are affecting the perception of cultural heritage, can help to establish special strategies for the problematic heritage, such as the Modern Movement. The Modern Movement is an intriguing case in the architectural sphere because while it has been evaluated as cultural heritage by the experts, the perception of the non-experts differs. In that regard, examining Modern Movement heritage provided the information on understanding how people are evaluating cultural heritage; furthermore, it has shed light on the ways to measure the

invisible social context, which have an impact on the appraisal of cultural heritage. However, the analysis that has been performed in this research helped to understand the characteristics of the Modern Movement, which affect people's judgement. When the cultural heritage of the Modern Movement is well expressed to the non-experts, the consequences, which were born by its paucity on perceived inherent and memento value, might be solved.

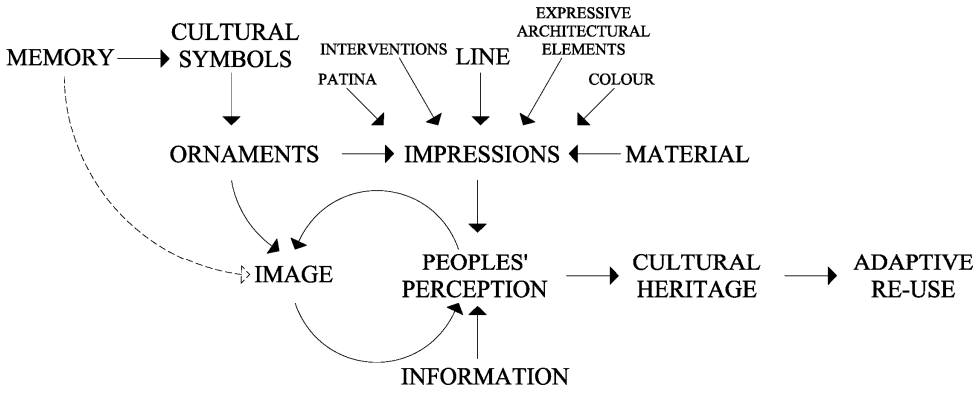


Chart 15. Cause-effect diagram summarising the relationship between the variables of the research and the indicators, which were identified

CONCLUSIONS

1. The development of emotional bonds with places is an essential requirement for psychological balance and the feeling of attachment; therefore, proper adjustment of the environment gives people a sense of stability and continuity. The performed research demonstrates that the reflection of memory and identity in architecture helps to establish these bonds, and it creates an impact on the perception of cultural heritage as well. One of the ways to express the memories and identity in architecture is by using pattern language, which uses the ornaments from vernacular architecture and ornaments, which reflect traditions. However, as it was revealed in the course of the performed research, it is possible to identify other indicators that affect the perception of cultural heritage.
2. The comparison and experiments performed between different cities, which represent the expression of the Modern Movement, such as Ankara and Kaunas Modernism, allowed to define the cultural elements that were used as determining factors in architecture. According to the results in the comparison, while the dialect of Kaunas contains ornaments, elements that were used from the 19th century onwards, such as the separate stairwells for servants in their plan schemes and usage of bricks and masonry work, which establishes more solid and durable masses, the dialect of Ankara does not contain these elements. However, in Ankara, it is possible to detect the existence of 'sofas' in some examples, which are one of the main elements in Turkish house planning, and the expression of which is more similar to the language of Bauhaus architecture in Berlin.
3. The analysis of the inventory regarding the built heritage of Kaunas has demonstrated that even though Kaunas Modernism contains some cultural elements in its language, most of the time, Modern Movement artefacts do not contain these elements, which is possibly influencing the case regarding their evaluation by the non-experts and creating a more subjective perception of these artefacts.
4. The results of the performed experiments managed to identify 7 critical indicators for people on their appraisal of cultural heritage. The indicators, which were determined, are as follows: ornaments, lines, material/texture, interventions, patina, colour and expressive architectural elements.
5. The results of the experiment I (social survey) suggest that the cultural elements, which the architecture carries, influences people's perception of an architectural object due to the triggering associations and memories. The analysis of the second experiment revealed that when the façades contain blank surfaces, most of the gaze does not scan these areas of the surface, or the surface does not attract the attention of people. However, blank and plain surfaces are one of the most distinct characters of the Modern Movement buildings, which are affecting their perception. Therefore, the identification of this issue regarding people's appraisal of these artefacts can help to develop different strategies, both in the preservation and adaptive re-use of the Modern Movement heritage.
6. When adaptive re-use is considered, most of the time, its social aspect is disregarded, and the socio-cultural benefits, which can be obtained by the adaptive re-use, are

omitted. However, it might not happen due to giving less priority to this aspect, but because social benefits and the impacts are harder to measure. The experiments that were implemented in this research are substantial, because especially the usage of eye tracking glasses is an essential approach for the future in the cultural heritage field, which can help to measure the perception of people.

7. The 7 critical indicators which were determined by the experiments and implemented in the design of the Cultural Heritage Perception Potential model demonstrates that there are various stimuli in the language of architecture regarding its evaluation of cultural heritage by the society. The model provides a moderate method for calculating the conceivable perception of society towards cultural heritage, and it is a conceptual framework for determining the potential, and as such, the capacity of the buildings to be socially perceived as heritage can be qualified. The model has important outcomes, such as serving for the heritage institutions to prove the value of artefacts that are already listed and the inclusion of new buildings to the lists, which can provide support to registration and categorisation. Furthermore, it works as a tool, which can estimate the perceived value of the heritage buildings by the members of the societies. In that regard, the knowledge that has been gained with the model can inspire the adaptive re-use process, and it can help to form different strategies, such as deciding which characteristics of the artefact require special protection or what parts need a specific emphasis. Therefore, it would help to include more user or observer's perspective into the process, and it would focus on the preservation of the integrity of the building.
8. If the CHPP score of the structure is lower than expected, the strategy of planning excursions to the building or promoting events and exhibitions, which demonstrate the importance of the building, might establish an impact on people's perception and trigger the community to take part in the action. Enhancing the image by providing more information about the building and educating people would derive involvement that is more social and establish more appreciation by the society. Furthermore, allowing people to use the space might help to develop new memories, which would facilitate the place attachment.

ACKNOWLEDGEMENTS

Firstly, the author of the dissertation would like to express her sincere gratitude to the supervisor Assoc. Prof. Dr. Vaidas Petrulis for his support and guidance on writing this dissertation and helping to begin PhD journey in Kaunas, Lithuania.

The author of the dissertation would like to indicate her appreciation to the reviewers from the department: Dr. Brigita Tranavičiūtė, Dr. Kastytis Rudokas, Dr. Rasa Bertasiutė, for their valuable criticism.

Besides supervisor and reviewers from the department, the author of the dissertation would like to thank the rest of the committee: Prof. Jūratė Kamičaitytė, Assoc. Prof. Dr. Aušra Mlinkauskienė, Prof. Marija Drėmaitė, Assoc. Prof. Dr. Liutauras Nekrošius, Assoc. Prof. Dr. Edita Riaubienė and Asst. Prof. Dr. Bilge İmamoğlu, for their insightful comments.

The author of the dissertation would like to sincerely thank Assoc. Prof. Dr. Indre Gražulevičiūtė-Vileniškė for her support during the research and for her advices during the process of writing articles and this dissertation. Without her precious encouragement, it would not be possible to conduct this research.

The author of the dissertation would like to thank colleagues from the department Paulius Tautvydas Laurinaitis and Nicola Belli for their support in the course of writing this dissertation. Furthermore, she thanks Dr. Triin Jerlei from Vilnius University for her insights regarding the dissertation and Gavin Stewart from Kaunas University of Technology for proofreading the text and for his valuable support.

Moreover, the author of the dissertation feels grateful to Lennert Buijtenhek for his encouragement and for the stimulating, but at the same time challenging discussions during the research and all the way along this journey.

The author of the dissertation would like to thank her family: Muhsin Doğan, Zeynep Filiz Doğan, Ahmet Özgür Doğan, Aslı Izmir Doğan, Zeynep Ilgın Doğan, Eke Doğan, Gülşen Ünal, Esra Yorgancı Özşen, Erdem Özşen and Mustafa Uras Özşen, for providing moral and emotional support throughout writing this dissertation and throughout every day of her life.

Lastly, the author of the dissertation would like to thank Lithuania for being her home for the last four years.

REFERENCES

1.Adler, P. (2002). *Beyond cultural identity: Reflections on multiculturalism, intercultural communication*. London: Wadsworth Publishing.

2. Akcan, E. (2012). *Architecture in translation: Germany, Turkey, and the modern house*. Durham: Duke University Press.

3.Alberti, L., B. (2006) *Architectural theory from the renaissance to the present*. Cologne: Taschen Press.

4.Alexander, C. (1977). *A pattern language: Towns, buildings, construction*. Oxford: Oxford University Press.

5.Alexander, C. (2004). *The nature of order: The luminous ground*. Oxford: Oxford University Press.

6.Anton, C. E. & Lawrence, C. (2016) The relationship between place attachment, the theory of planned behaviour and residents' response to place change. *Journal of Environmental Psychology*, 47, 145–154.

7.Ardakani, M.K. & Oloonabadi, S.S.A. (2011). Collective memory as an efficient agent in sustainable urban conservation. *Procedia Engineering*, 986-987.

8. Aslanoğlu, İ (2010). *Erken Cumhuriyet Dönemi Mimarlığı (1923-1938).*Bilge Kültür Sanat Press.

9.Assmann, J. (1988). *Collective memory and cultural identity*. Frankfurt: Suhrkamp Press.

10.Bakhtin, M. (1981). *Forms of time and the chronotope in the novel.* Austin: University of Texas Press.

11.Benevolo, L. (1989). *History of Modern Architecture II*. Massachusetts: M.I.T Press.

12.Bielinskis, F. (1937). The essence of architecture. *Savivaldybė,*2, 62-65.

13.Birol, G. (2010). *Cumhuriyet dönemi mimari mirasını koruma güçlükleri: Balıkesir'deki örnek yapılar üzerine bir inceleme*. Mersin: Mersin Üniversitesi Restorasyon ve Koruma Merkezi.

14.Bonta, J. (1979). *Architecture and its interpretation: A study of expressive systems in architecture*. New York: Rizolli Press.

15.Bony, A. (2010). *L'architecture Moderne*. Paris: Larousse Press.

16.Boothby, E.J., Clark, M.S. & Bargh, J.A. (2014). Shared experiences are amplified. *Journal of Psychological Science*, 25(12), 2209-2216.

17.Borden, I. (2006). Thirteen tactics for the good life, In. Zoe Ryan (ed.), *The Good Life: New Public Spaces for Recreation*. New York: Van Alen Institute and Princeton Architectural Press.

18.Bourdieu, P. (2002). *Habitus: A sense of place*. Farnham: Ashgate Publishing.

19.Bozdoğan, S. (1988). Journey to the East: Ways of looking at the Orient and the question of representation, *Journal of Architectural Education*, 41 (4), 38-45.

20.Bozdoğan, S. (2001). *Modernism and nation building: Turkish architectural culture in the early republic*. Washington: Washington University Press.

21.Bozdoğan, S. (1995). Vernacular architecture and identity politics: The Turkish house, *Traditional Dwellings and Settlements Review,* 7 (2), 7-18.

22.Brady, T., Konkle, T., Alvarez, G. & Oliva, A. (2008). Visual long-term memory has a massive storage capacity for object details. *Proceedings of The National Academy of Sciences Journal*, 105 (38), 325-329.

23.Briggs, A. (2000). *The age of improvement: 1783-1867*. London: Longman Press.

24.Broadbent, G. (1980). *The deep structures of architecture: in signs, symbols, and architecture*. New Jersey: John Wiley & Sons Press.

25. Brown, G., Raymond, C. M. & Corcoran, J. (2015). Mapping and measuring place attachment. *Journal of Applied Geography*, 57, 42–53.

26.Bullen, P. & Love, P. (2011). Adaptive re-use of heritage buildings. *Journal of Structural Survey*, 29 (5), 411-421.

27.Bullen, P. & Love, P. (2011). A new future for the past: A model for adaptive reuse decision-making. *Journal of Built Environment Project and Asset Management*, 1(1), 32-44.

28.Campbell, R. (2004). Why don't the rest of us like the buildings the architects like. *Bulletin of the American Academy*, 1, 22-25

29.Carmichael, B., T. (2012). When modern becomes historic: Preserving the modernist building envelope. *Journal of Building Design + Construction*, 1, 40-46

30.Carrera, F. (1998). *Is the lamp of memory still burning? Memory in Architecture and in Urban Design*. Massachusetts: MIT Press.

31.Chan, P. (2016). *Community participation in heritage management: A case in Macau*. New York: Columbia University Press.

32.Colquhoun, A. (1997). *The concept of regionalism in postcolonial space(s).* New Jersey: Princeton Architectural Press.

33.Connerton, P. (2009). *How modernity forgets*. Cambridge: Cambridge University Press.

34.Conrads, U. (1971). *Programs and manifestoes on 20th century architecture*. Massachusetts: MIT Press.

35.Coolican, H. (1994). *Research methods and statistics in psychology (2nd ed.).* London: Hodder & Stoughton Press.

36.Cunningham, A. (1998). *Modern movement heritage, DOCOMOMO*. London: E&FN Spon Publishing.

37.Curtis, W. J. R. (1991). *Modem architecture since 1900.* Oxford: Phaidon Press.

38.Çaylan, D. (2000). *An evaluation on the regionalist trends in 20th century Turkish architecture*. Izmir: Izmir Institute of Technology Press.

39.Daniel, T. C. (1990). Measuring the quality of the natural environment: A psychophysical approach. *Journal of American Psychologist*,45(5), 633-637.

40.Daniel, T. C. & Meitner, M. M. (2001). Representational validity of landscape visualizations: The effects of graphical realism on perceived scenic beauty of forest vistas. *Journal of Environmental Psychology*, 21(1), 61-72.

41.Debord, G. (2008). *Critical geographies: a collection of readings: Introduction to a critique of urban geography.* Glasgow: Praxis Press.

42.Defetyer, M, A., Russo, R. & McPartlin, P. (2009). The picture superiority effect in recognition memory: A developmental study using the response signal procedure. *Journal of Cognitive Development*, 24(3), 265-273.

43.De Jonge, W. (2017). Sustainable renewal of the everyday modern. *Journal of Architectural Conservation*, Vol.23(1-2), 62-105.

44.Den Boer, P. (2008). *Cultural memory studies: An international and interdisciplinary handbook*. Berlin: De Gruyter Press.

45.Denzin, N. K., & Lincoln, Y. S. (2003). *Collecting and interpreting qualitative materials (2nd ed.).* California: Sage Publishing.

46.Desilvey C. (2017). *Curated decay: Heritage beyond saving,* Minneapolis: University of Minnesota Press.

47.Djalali, A. (2017). Eisenman beyond Eisenman: Language and architecture revisited. *Journal of Architecture*, 22 (8), 1287-1298.

48.Doğan, H.A. (2019). Assessment of the perception of cultural heritage as an adaptive re-use and sustainable development strategy: Case study of Kaunas, Lithuania. *Journal of Cultural Heritage and Sustainable Development*, 9(3),430-443.

49.Doğan, H.A. (2019). Implementation of eye tracking technology on cultural heritage research and practice. *Journal of Creativity Games*, 7, 16-21.

50.Doğan, H.A. (2018). Is ornament a crime: Ornament usage in the modern movement and its impact on society's perception, Journal of Architecture and Life, 3(1), 113-127.

51.Donougho, M. (1987). The language of architecture. *Journal of Aesthetic Education*, 21(3), 53-67.

52.Droste, M. (2002). *Bauhaus 1919-1933*. Berlin: Taschen Press.

53. Eco, U. (1986). Architecture and memory. Via. Number 8. pp. 88-94.

54.Eco, U. (1997). Function and Sign: The semiotics of architecture, In. Neil Leach (ed.), *Rethinking Architecture.* Oxford: Routledge Press.

55.Edson, G. (2004). Heritage: Pride or passion, product or service. *International Journal of Heritage Studies*, 10(4), 333-348.

56.Ergut, T, E. (1999). Searching for a national architecture: The architectural discourse in early republican Turkey. *Traditional Dwellings and Settlements Review*, 12(1), 59-60.

57.Erll, A. (2008). *Cultural memory studies: An international and interdisciplinary handbook*. Berlin: De Gruyter Press.

58.Fernandes, E. (2016). Reform follows function: Reflections on the reuse of modern buildings. *Conference Proceedings of DOCOMOMO,* 923-930.

59.Findlay, J.M. & Gilchrist, I.D. (2012). Visual attention: A fresh look. *Journal of the British Psychologists Society*, 25(1), 900-902.

60.Forster, K. (1999). Why are some buildings more interesting than others, *Harvard Design Magazine*, 7(1),2-4.

61.Frampton, K. (1992). Modern architecture: A critical history. London: Thames and Hudson Press.

62.Frampton, K. (1983). Towards a critical regionalism: Six points for an architecture of resistance: Postmodern culture. London: Pluto Press.

63.Freidheim, L. & Khalaf, M. (2016). The significance of values: Heritage value typologies re-examined. *International Journal of Heritage Studies*, 26(6), 466-481.

64.Galindo, M.P. & Rodriguez, J.A.C. (2000). Environmental aesthetics and psychological well-being: relationships between preference judgements for urban landscapes and other relevant affective responses. *Psychology in Spain*,4(1), 13-27.

65.Gibson, J. (1950). *The perception of the visual world*. Illinois: Riverside Press.

66.Gibson, L. (2009). *Valuing historical environments*, Farnham: Ashgate Publishing.

67.Giddings, F. (2004). *The principles of sociological theory*. Guildford: Genesis Publishing.

68.Gendelman, I. & Aiello, G. (2010). Faces of places: Facades as global communication in Post-Eastern Bloc-urban renewal, In. *Semiotic Landscapes: Language, Image, Space*, New York: Continuum International Publishing.

69.Glăveanu, V., P. (2014) The function of ornaments: A cultural-psychological exploration. *Journal of Culture and Psychology*,20(1), 82-101.

70.Gold, J., R. & Goodey, B. (1983). *Behavioural and perceptual geography: Progress in human geography*, California: Sage Publishing.

71.Góral, A. (2014). Cultural heritage in the cobweb of meanings, *Proceedings of the 4th International Conference on Heritage and Sustainable Development*, 19-29.

72.Gottfried, S. (1989). Preliminary remarks on polychrome architecture and sculpture in antiquity, In. Harry Francis Mallgrave and Wolfgang Herrmann, *The four elements of architecture and other writings*. Cambridge: Cambridge University Press.

73.Gottfried, S. (1989). Style in the technical and tectonic arts or practical aesthetics, In. Harry Francis Mallgrave and Wolfgang Herrmann, *The four elements of architecture and other writings*. Cambridge: Cambridge University Press.

74.Graham, B. (2005). *Senses of place: Senses of time*, Farnham: Ashgate Publishing.

75.Gravari-Barbas, M. (2014). *Towards a new EU agenda for cultural heritage.* Research and innovation' horizon 2020 expert group on cultural heritage workshop.

76.Gražulevičiūtė-Vileniškė, I. (2006). Cultural heritage in the context of sustainable development. *Journal of Environmental Research, Engineering and Management*, 3(37), 74-79.

77.Gropius, W. (1925). Internationale Architektur, Berlin: Albert Lange Publishing.

78.Gross, D. (2000). Lost time on remembering and forgetting in late modern culture: A probing study of the place of memory in the contemporary western world. Massachusetts: MIT Press.

79.Gusevich, M. (1988). Purity and transgression: Reflection on the architectural avantgarde's rejection of kitsch. *Journal of Discourse*, 10(1), 90-115.

80.Güngör, Ş. (2010). Görsel kompozisyonun bir öğesi olarak çizgi*, Journal of Atatürk University Fine Arts Faculty*, 15(1), 85-100.

81.Habermas, J. (1987). *Modernity-an incomplete project*, Winnipeg: Bay Press.

82.Habermas, J. (1987). *Modernity`s consciousness of time and its need for self-reassurance: The philosophical discourse of modernity.* Massachusetts: MIT Press.

83.Halbwachs, M. (1987). *On collective memory.* Chicago: The University of Chicago Press.

84.Hahn, P. (2015). *Bauhaus: Reform and avantgarde-preface.* Berlin: Taschen Press.

85.Haldrup, M. & Bærenholdt, J. (2015). Heritage as performance, In. Waterton, E., Watson, S. (eds.)*, The Palgrave handbook of contemporary heritage research*. Hampshire: Macmillan Publishers.

86.Hall, S. (1990). *Cultural identity and diaspora: identity, community, culture, and difference*, London: Lawrence and Wishart Publishing.

87.Hamlin, A. (1896). *History of architecture*. Columbia: Columbia College Press

88.Hasbora, H. (1998). *Istanbul art deco mimarisinde apartman cephe tipolojisi.* Istanbul: Msgsu Publishing.

89.Hasol, D. (1999). *Cumhuriyet dönemi mimarlığından bir panaroma*. Istanbul: Itü Publishing.

90.Hawkes, J. (2001). *The fourth pillar of sustainability: Culture's essential role in public planning*. Melbourne: Common Ground Publishing.

91.Hetherington, J., Daniel, T. C. & Brown, T. C. (1993). Is motion more important than it sounds? The medium of presentation in environmental perception research. *Journal of Environmental Psychology,* 13(4), 283-291.

92.Heynen, H. (1999). What belongs to architecture? Avant-garde ideas in the modern movement. *Journal of Architecture*, 4(2), 129-147.

93.Hillier, B. (1996). *Space is the machine: A configurational theory of architecture*. London: UCL Publishing.

94.Hitchcock, H. R. (1966). *International style*. New York: Norton Press.

95.Hockley, W. (2008). The picture superiority effect in associative recognition. *Journal of Memory and Cognition*, 36(7), 1351-1359.

96.Hoffmann, G. (2005). *From modernism to post-modernism: Concepts and strategies of post-modern American fiction*. Amsterdam: Rodopi Press.

97.Holahan, C., J. (1986). Environmental psychology. *Annual Review of Psychology*, 37, 381-407.

98.Holmqvist, K., Nyström, M., Andersson, R., Dewhurst, R., Jarodzka, H. & Van de Weijer. J. (2011). *Eye tracking: A comprehensive guide to methods and measures.* Oxford: Oxford Press.

99. Houri-Ze'evi. L., Korem, Y., Sheftel, H., Faigenbloom, L., Toker, I.A., Dagan, Y., Awad, L., Degani, L., Alon, U. & Rechavi, O. (2016). A tunable mechanism determines the duration of the transgenerational small RNA inheritance in C. elegans. *Journal of Cell,* 165(1), 88-99.

100.Howard, P. (2010). The rise of heritage, *Journal of Asian Anthropology*, 9(1), 1-27.

101.Hristova, Z. (2006). *The collective memory of space: The architecture of remembering and forgetting*, Toronto: Ryerson University Press.

102.Islami, S, Y. (2009). *The architecture of surface,* Edinburgh: The University of Edinburgh Press.

103.Jankeviciute, G. (2017). *Kaunas Architectural Guide*, Vilnius: Architekturos Fondas Press.

104.Jeanneret, C.E. (1987). Le Corbusier (1887-1965)- *Le Voyage d'Orient*. Massachusetts: MIT Press.

105.Jeffery, K. & Hayman R. (2004). Plasticity of the hippocampal place cell representation. *Journal of Reviews in the Neurosciences*, 15(5), 309-331.

106.Jencks, C. (1991). *The language of postmodern architecture*, London: London Academy Group Press.

107.Jencks, C. (2011). *The story of post-modernism: Five decades of the ironic, iconic and critical in architecture.* New Jersey: John Wiley & Sons Publishers.

108.Jenkins, R. (1996). *Social identity*, Oxford: Routledge Press.

109.Jens K. & Steen Jacobsen, J., K., S. (2007). Use of landscape perception methods in tourism studies: A review of photo-based research approaches, *Tourism Geographies: An International Journal of Tourism Space, Place and Environment*, 9(3), 234-253.

110.Johnson, A. (1996). Rehabilitation and re-use of existing buildings, In Mills, E.D. (ed.), *Building maintenance and preservation: A guide to design and management.* Oxford: Architectural Press

111.Johnson, P. (1999). What I have Learned, *Esquire magazine*, 2(1).

112.Kastner, S., Pinsk, M. A., De Weerd, P., Desimone, R. & Ungerleider, L. G. (1999). Increased activity in human visual cortex during directed attention in the absence of visual stimulation, *Journal of Neuron*, 22(4), 751-761.

113.Kiroff, L. (2002). *Visual language in architectural design*. Auckland: Unitec Institute of Technology Press.

114.Klosin, A., Casas, E., Hidalgo-Carcedo, C., Vavouri, T. & Lehner, B. (2017). Transgenerational transmission of environmental information in C. elegans, *Journal of Science,* 356(6335), 320-323.

115.Kluitenberg, E. (1999). *The politics of cultural memory, lecture, media · revolution*, Stephen Kovats (ed.). Weimar: Bauhaus Campus Press

116.Kruft, H., W. (1994). *A History of Architectural Theory from Vitruvius to the Present.* Princeton: Princeton Architectural Press.

117.Kuiper, K. (2007). *Ornament in architecture*, Encyclopaedia Britannica Online.

118.Lange, E. (2001) The limits of realism: Perceptions of virtual landscapes. *Journal of Landscape and Urban Planning*, 54(1), 163-182.

119.Langston, C., Wong, F.K.W., Hui, E.C.M. & Shen, L. (2008). Strategic assessment of building adaptive reuse opportunities in Hong Kong, *Journal of Building and Environment,* 43(10), 1709-1718.

120.Langston, C. (2012). Validation of the adaptive reuse potential (ARP) model using iconCUR*, Journal of Facilities*, 30(3-4), 105-123.

121.Le Corbusier, (1931). *Towards a new architecture*. London: John Rodker Publisher.

122.Lefebvre, H. (1991). *The production of space*, Oxford: Blackwell Press.

123.Lewicka, M. (2008). Place attachment, place identity and place memory: Restoring the forgotten city past. *Journal of Environmental Psychology*, 28(3), 211-213.

124.Loftus, E. F. & Pickrell, J. E. (1995). The formation of false memories, *Journal of Psychiatric Annals*, 25(12),720-725.

125.Long, C. (2009). The origins and context of Adolf Loos's ornament and crime. *Journal of the Society of Architectural Historians*, 68(2), 200-223.

126.Logan, W. & Reeves, K. *Places of pain and shame: Dealing with difficult heritage*. Oxford: Routledge Press.

127.Loos, A. (1908). *Ornament and Crime.* Vienna.

128.Loyer, F. (2001). *Façadisme et identite urbaine*. Paris: Monum Press.

129.Lynch, K. (1960). *Image of the city*. Massachusetts: MIT Press.

130.Maciuika, J., V. (1999). East bloc, west view: Architecture and Lithuanian national identity, *Journal of Traditional Dwellings and Settlements Review*, 11(1), 23-35.

131.Madran, E. (2006). *Okumak Isteyene DOCOMOMO Uzerine Notlar*. Ankara.

132.Maholy-Nagy, L. (1975). *The new vision: Fundamentals of Bauhaus design, painting, sculpture, and architecture,* New York: Dover Publication.

133.Manenti, C. (2011). Sustainability and place identity. *Journal of Procedia Engineering*. 21, 1104-1109.

134.Mather, M. & Nesmith, K. (2007). Arousal-enhanced location memory for pictures. *Journal of Memory and Language*, 58(2), 449-464.

135.Marot, S. (2003). *Sub-urbanism and the art of memory.* London: Architectural Association Press.

136.Marotta, A., Spallone, R., Turco, M., Zich, U., Vitali, M., Marchis, E. & Pavignano, M. (2017). Visual images and language in architecture: Signifier semiotics and meaning semiotics, *Journal of Proceedings*, 1(9), 964-980.

137.Maxwell, R. (1998) Preface-modern movement heritage, Allen Cunningham (ed.), DOCOMOMO, London: E&FN Spon Publishing.

138.Mayes, T. M., (2013). *Why old places matter: How historic places affect our identity and well-being.* Maryland: Rowman & Littlefield Publishing.

139.McMains, S. A., Kastner, S. (2009). *Visual attention*. Encyclopedia of Neuroscience.

140.Mehrpoya, H. (2015). A comparison of identity in vernacular and contemporary houses. *Walia Journal*, 31(55), 69-75.

141.Merriam, S. B. (1998). *Qualitative research and case study applications in education*. New Jersey: John Wiley & Sons Publishers.

142.Mesch, G. S. & Manor, O. (1998). Social ties, environmental perception, and local attachment, *Journal of Environment and Behaviour,* 30(4), 504-519.

143.Michl, J. (2011). *The modernist idea of architecture, conference paper.* School of Architecture Conference, Plymouth University Press.

144.Misztal, B. (2003). *Theories of social remembering*, London: Open University Press.

145.Moughtin, C. (2003). *Urban design: Street and square,* Amsterdam: Architectural Press.

146.Mörsch, G. (1990). *Das Neue Bauen als Herausforderung a die Denkmalpflege*, Berlin: Unsere Kunst-denkmaeler.

147.Nalbantoğlu, G. (1993). Architects, style and power: The Turkish case in the 1930's, *Journal of Twentieth Century Art and Culture*, 8(2), 115-122.

148.Nooraddin, H. (2012). Architectural identity in an era of change, *Journal of Developing Country Studies*. 2 (10), 81-96.

149.Norberg-Schultz, C. (1980). *Genius loci: Towards a phenomenology of architecture*. London: Academy Editions.

150.Noton, D. & Stark, L. (1971) Scanpaths in eye movements during pattern perception. *Journal of Science,*171(3968), 308-311.

151.Ocvirk, O., Stinson, R., Wigg, P., Bone, R. & Cayton, D. (2013). *Art fundamentals: theory and practice, 12th Edition*. New York:McGraw-Hill Publishing.

152.Oliver. P., & Myres. P. (1998). *Encyclopedia of Vernacular Architecture of the World.* Cambridge: Cambridge University Press.

153.Otero-Pailos, J. (2016). *Experimental preservation: The potential of not-me creations,* In Jorge Otero-Pailos, Erik Langdalen, Thordis Arrhenius, (eds.) Zurich: Lars Müller Publishers

154.Özer, B. (1993). *Kultur-sanat-mimarlik*, Istanbul: YEM Publishing.

155.Paivio, A. (1978). The relationship between verbal and perceptual codes: Handbook of perception. *Journal of Perceptual Coding*, 9, 375-397.

156.Pallasmaa, J. (2005). *The eyes of the skin: Architecture and the senses*. New Jersey: John Wiley & Sons Publishers.

157.Paszkowski, Z., W. (2011). Timeless value in architecture. *Czasopismo Techniczne. Architektura Journal*, 108, 305-309.

158.Pearson, M. & Sullivan, S. (1999). *Looking after heritage places: The basics of heritage planning for managers, landowners and administrators.* Melbourne: Melbourne University Press.

159.Pellauer, D. & Dauenhauer B. (2012). *Paul Ricoeur.* Stanford Encyclopedia of Philosophy (Winter 2012 Edition), Edward N. Zalta (ed.).

160.Pérez de Arce, R. (2015). *Urban transformations & The architecture of additions*. Oxford: Routledge Press.

161.Peters, P. (2006). *Historical cultural memory celebrated through architecture*. Detroit: University of Detroit Press.

162.Petrulis, V. (2014). Architectural ideas in post-world war I Lithuania: Between national style and the modern movement. *Centropa,* 14(2), 209-217.

163.Petrulis, V. (2016). Conflicts of the heritage: Mapping values of immovable cultural heritage in Kaunas downtown area. *Journal of Art History& Criticism*,12, 20-30.

164.Pinotti, A. (2003). Memory and image. Colombia: The Italian Academy of Advanced Studies Press.

165.Rabun, J. & Kelso, R. (2009). *Building evaluation for adaptive reuse and preservation.* New Jersey: John Wiley & Sons Publishers.

166.Ramkissoon, H., Smith, L. D. G. & Weiler, B. (2013). Testing the dimensionality of place attachment and its relationship with place satisfaction and pro-environmental behaviours: A structural equation modelling approach, *Journal of Tourism Management*,36, 552-566.

167.Rampley, M. (2012). *Heritage, ideology and identity in central and eastern Europe*. Woodbridge: Boydell Press.

168.Rapoport, A. (2019). Architecture, propaedeutics and language, *Advances in Social Science, Education and Humanities Research*, 324, 213-216.

169.Rapoport, A. (1969). *House forms and culture.* Wisconsin: Foundation of Cultural Geography Series Press.

170.Rapoport, A. (1982). *Meaning of the built environment.* Tucson: The University of Arizona Press.

171.Rich, G. (2017). Renewing modernism: emerging principles for practice. *Journal of Architectural Conservation*,23(1-2),116-140.

172.Richards, J., M. (1940). *An introduction to modern architecture*. London: Penguin Books.

173.Richards, J. (1994). Façadism. Oxford: Routledge Press.

174.Riegl, A. (1903). *The modern cult of monuments: Its essence and its development.* K. K. Zentral-Kommission für Kunst- und Historische Denkmale:Braumüller.

175.Robins, K. (1996). Interrupting identities: Turkey/Europe. California: Sage Publications.

176.Rodriguez, J. & Fortier, T. (2007). *Cultural memory, resistance, faith and identity*. Austin: University of Texas Press.

177.Rossi, A. (1982). *The architecture of the city*. Massachusetts: MIT Press.

178.Ruskin, J. (1849). *Seven Lamps of Architecture*. London: Smith, Elder and Co.

179.Rypkema D. (1999). *Culture, historic preservation and economic development in the 21st century*. Conference Proceedings.

180.Saidi, A. (2019). Architecture vs Neuroscience: The interpretation of research results in neuroscience to support phenomenological issues in architecture, *Journal of Creativity Games*, 7, 33-37.

181.Salingaros, N. (2006). *A theory of architecture.* Berlin: Umbau-Verlag Harald Püschel,

182.Salingaros, N. (2013). *Unified architectural theory: Form, language, complexity.* Nepal: Vajra Books.

183.Samalavičius, A. (2003). Globalization: National culture and identity, culturology. *Cultural Identities and Changes*,10,18-25.

184.Smith, A. (1992). National identity and the Idea of European unity, *Journal of Royal Institute of International Affairs*, 68(1), 55-76.

185.Smith, L. (2006). *Uses of heritage,* Oxford: Routledge Press.

186.Sözen, M. & Tanyeli, U. (2007). *Birinci Ulusal Mimarlık*, Sanat Kavram ve Terimleri Sözlüğü.

187.Sözen, M. (1996). *Cumhuriyet dönemi Türk mimarlığı,* Istanbul: İş Bankası Kültür Press.

188.Staiff, R. (2014). *Re-imagining heritage interpretation: Enchanting the past-future,* Farnham: Ashgate Publishing.

189.Stephenson, J. (2008). The cultural values model: An integrated approach to values in landscapes, *Journal of Landscape and Urban Planning*, 84(2),134-136.

190.Sternberg, R. J. & Sternberg, K. (2003). *Cognitive psychology*, London: Wadsworth Publishing.

191.Sturken, M. (1997). *Tangled memories.* California: University of California Press.

192.Sullivan, L. (1896). *The tall office building artistically considered.* New York: Lippincott's Magazine.

193.Sun, A. (2017). *The values of architecture*. Wellesley: Wellesley Collage Press.

194.Suratkon, A. (2010). *Criteria to evaluate adaptive reuse potential of existing buildings.* Conference Proceedings.

195.Sussman, A. & Hollander, J. (2015). *Cognitive architecture: Designing for how we respond to the built environment.* Oxford: Routledge Press.

196.Tanguay, G, A. Berthold H. & Rajaonson, J. (2014). *A comprehensive strategy to identify indicators of sustainable heritage conservation,* Les Cahiers du CRTP.

197.Tatler, B., W. (2014). *Eye movements from laboratory to life, current trends in eye tracking research,* Horsley, M., Toon, N., Knight, B.A., Reilly, R. (eds.). New York: Springer Publishing.

198.Tatler, B., W., Wade, N., J., Kwan, H., Findlay, J., M. & Velichkovsky, B., M. (2010). Yarbus, Eye movements and vision, *Journal of i-Perception*, 1(1), 7-27.

199.Taylor-Foster, J. (2015). *Renzo Piano on 'civic duties' in our cities*, Arch Daily.

200.Thurley, S. (2005). Into the future: Our strategy for 2005-2010, *Conservation Bulletin [English Heritage],* 49, 26- 27.

201.Tomlinson, J. (1999). *Globalization and cultural identity*. Cambridge: Polity Press.

202.Tozer, W.R.E. (2011). *A theory of making architecture and art in the practice of Adolf Loos.* London: University College London Press.

203.Trilling, J. (2003). *Ornament: A modern perspective.* Washington: Washington University Press.

204.Tufte, E. (1997). *Visual explanations: Images and quantities, evidence and narrative.* Cheshire: Graphics Press.

205.Tunbridge, J. & Ashworth G.J. (1996). *Dissonant heritage: The management of the past as a resource in conflict.* London: Belhaven Press.

206.Tveit, M., Ode, A. & Fry., G. (2006). Key concepts in a framework for analysing visual landscape character, *Journal of Landscape Research,* 31(3), 229-255.

207.Umbach, M. & Huppauf, B. (2005). *Vernacular modernism: Heimat, globalization and the built environment.* Stanford: Stanford University Press.

208.Van Haeren, K. (2014). *Architecture as a language: A means of communication of social time.* Conference Proceedings.

209.Vaske, J. J. & Kobrin, K. C. (2001). Place attachment and environmentally responsible behaviour. *Journal of Environmental Psychology,* 32(4), 116-121.

210.Vecco, M. (2010). A definition of cultural heritage: From the tangible to the intangible. *Journal of Cultural Heritage*, 11(3), 321-324.

211.Venturi, R. (1966). *Complexity and contradiction in architecture.* New York: The Museum of Modern Art Papers on Architecture Press.

212.Venturi, R. (1972). *Learning from Las Vegas,* Massachusetts: MIT Press.

213.Vitruvius. (1993). *The Ten Books on Architecture.* Istanbul: Sevket Vanli Yayinlari.

214.Vizbaras, F. (1933). Kaunas Post Office, *Technika ir ukis,* 5, 148-158.

215.Wade, K. A., Garry, M., Read, J. D. & Lindsay, D. S. (2002). A picture is worth a thousand lies: Using false photographs to create false childhood memories. *Journal of Psychonomic Bulletin & Review*,9(3), 597-603.

216.Wagstaff, J. (2015). Heritage and memory, *The Palgrave handbook of contemporary heritage research*. Hampshire: Macmillan Publishers.

217.Wagstaff, J. (2011). *Heritage that hurts: Tourists in the memoryscapes of September 11,* Oxford: Routledge Press.

218.Wang, H. & Zeng, Z. (2010). A Multi-objective decision-making process for reuse selection of heritage buildings, *Journal of Expert Systems with Applications*, 37(2), 1241-1249.

219.Watson, G.B. & Bentley, I. (2007). *Identity by design*. London: Elsevier Publishing.

220.Whalen, R., W. (2007). *Sacred spring: God and the birth of modernism in Fin de Sicle Vienna*. Michigan: Wm. B. Eerdmans Publishing.

221.Whyte, W. (2006). How do buildings mean? Some issues of interpretation in the history of architecture. *Journal of History and Theory*, 45(2), 153-177.

222.Wickson, F., Carew, A.L & Russell, A.W. (2006). Transdisciplinary research: Characteristics, quandaries and quality, *Journal of Futures,* 38(9),1046-1059.

223.Williams, D., Stewart, W. & Kruger, L. (2013). *Place-based conservation: Advancing social theory and practice*. In place-based conservation: Perspectives from the Social Sciences, New York: Springer Publishing.

224.Williams, D. E., Reingold, E. M., Moscovitch, M. & Behrmann, M. (1997). Patterns of eye movements during parallel and serial visual search tasks. *Canadian Journal of Experimental Psychology*, 51(2)*,* 151-164.

225.Wohlleben, M. (1990). *Riegl and the modern age.* Unsere Kunst-denkmaeler.

226.Xia, R. (2008). The study of characteristics of visual attention in depth of drivers in traffic environment, Takamatsu: Kagawa University Press.

227.Yarbus. A., L. (1967). *Eye movement and vision.* New York: Plenium Press.

228.Yates, F. (1966). The art of memory. Chicago: The University of Chicago Press.

229.Zevi. B. (1978). The modern language of architecture, Canberra: Australian National University Press.

230.Zinsmeister, A. (2015). *Perception in architecture: Here and now*. Cambridge: Cambridge Scholars Publishing

231.Zube, E. H., Sell, J. L. & Taylor, J. G. (1982). Landscape perception: research, application, and theory. *Journal of Landscape Planning,* 9(1),1-33.

Legal Documents:

1.Burra Charter, Article 12, ICOMOS, Australia, 1999

2.Council of Europe Framework Convention on Value of Cultural Heritage for Society. Council of Europe Treaty Series, no. 199, 2005

3.Faro Convention, Council of Europe Framework Convention on Value of Cultural Heritage for Society, Council of Europe Treaty Series, No. 199, available at: https://rm.coe.int/1680083746 (accessed 27 May 2018), 2005

4.Governmental Social Research Results Report, Department of Culture, Media and Sport, UK, 2014

5.Nomination for Inscription for Berlin on the UNESCO World Heritage List, p.2-3, 2008

6. The ICOMOS International Scientific Committee for Twentieth Century Heritage (ISC 20C) is developing guidelines for the conservation of heritage sites of the twentieth century during 2011–2012. As a contribution to this debate, the International Conference "Intervention Approaches for the Twentieth Century Architectural Heritage" - "CAH 20thC" adopted on 16 June 2011 the following text "Approaches for the Conservation of Twentieth Century Architectural Heritage, Madrid Document 2011.

7.United Nations Educational, Scientific and Cultural Organization, Convention Concerning the Protection of the World Cultural and Natural Heritage World Heritage Committee, Thirty-First Session Christchurch, New Zealand, 2007

8.United Nations Environmental Programme, Division of Technology, Industry, and Economics, Green Meeting, 2009.

9.Venice Charter, Venice, Italy, 1964

Internet Access:

1.Information about the Bauforschung method was taken from the following website: http://doktori.bme.hu/bme_palyazat/2011/tudomanyos_muhely/Torteneti_epuletkutato_muhely_en.htm [accessed: March, 2017]

2. https://www.merriam-webster.com/dictionary/palimpsest [accessed: March, 2017] from the website of Merriam-Webster dictionary.

3.Laurinaitis P. T. Reflections of Modernism in the Temporary Capital of Lithuania 2017 Available at: http://www.autc.lt/en/ route/6 [accessed 5 February 2018]

4. http://www.unfpa.org/migration [accessed: July, 2019] from the website of the United Nations Population Fund.

5. Website of Adolf Loos Apartment and Gallery, Villa Müller https://adolfloos.cz/en/villa-muller [accessed: October, 2019]

6. Coast Modern is an independent documentary by directors Mike Bernard and Gavin Froome produced by Twofold Films in 2012. https://www.youtube.com/watch?v=MgflBLc9yvk [accessed 17 February 2018].

7.Official website of State of Berlin: http://www.stadtentwicklung.berlin.de/denkmal/denkmale_in_berlin/en/weltkulturerbe/siedlungen/hintergrund.shtml [accessed: December, 2017]

ANNEXE I-INVENTORY

Drawing 1. Laisvės Avenue 53, Former Pažanga Company Headquarters

Drawing 2. Laisvės Avenue 55, Former Pieno Centras

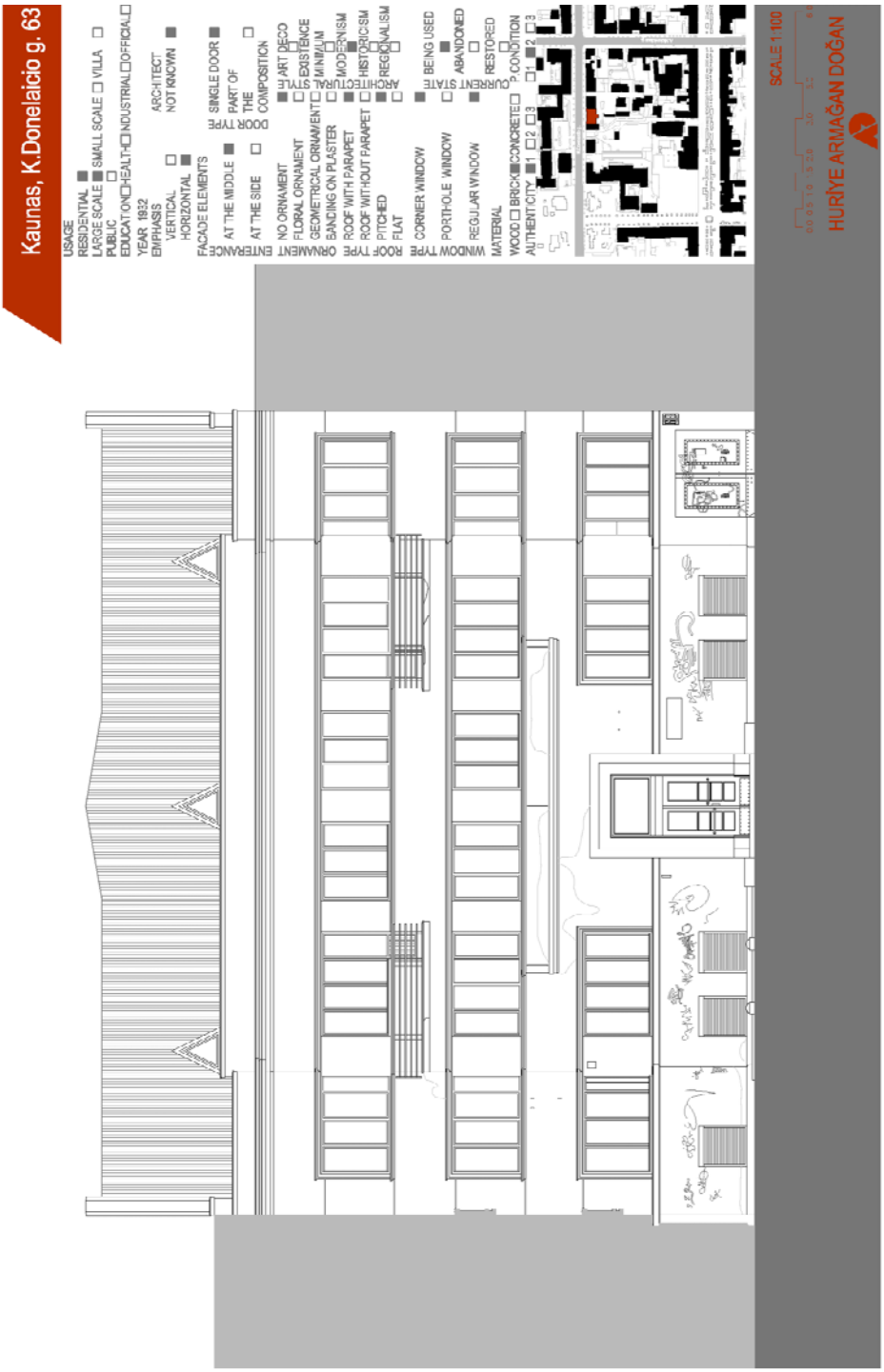
Drawing 3. Laisvės Avenue 96, Municipality

Drawing 4. A. Mickevičiaus Street 17, Officers Palace

Drawing 5. K. Donelaičio Street 19, Iljinienės House

Drawing 6. K. Donelaičio Street 51

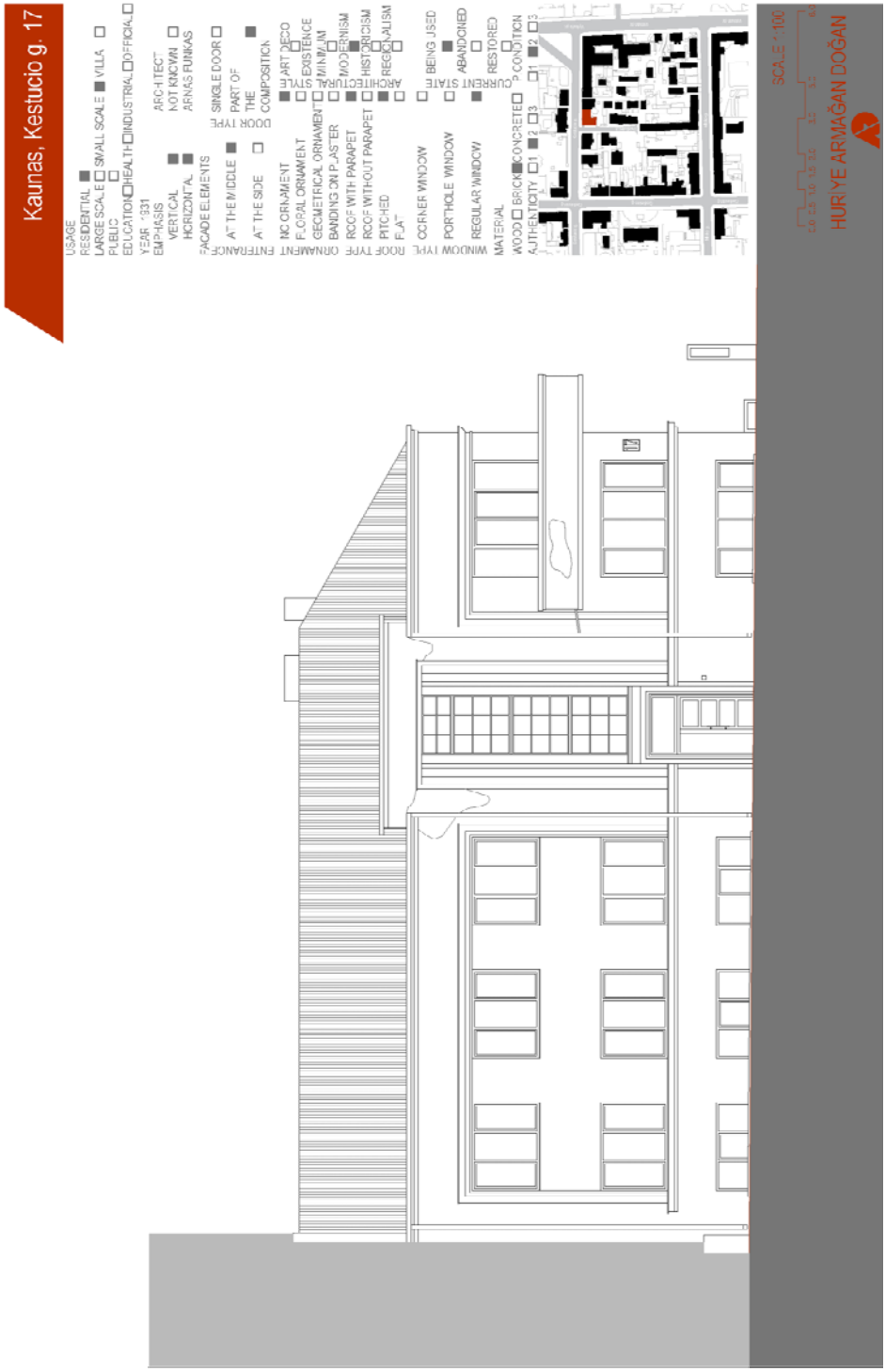
Drawing 7. K. Donelaičio Street 55



Drawing 8. K. Donelaičio Street 63

Drawing 9. Kęstučio Street 15

Drawing 10. Kęstučio Street 16



Drawing 11. Kęstučio Street 17

Drawing 12. Kęstučio Street 19

Drawing 13. Laisvės Avenue 2

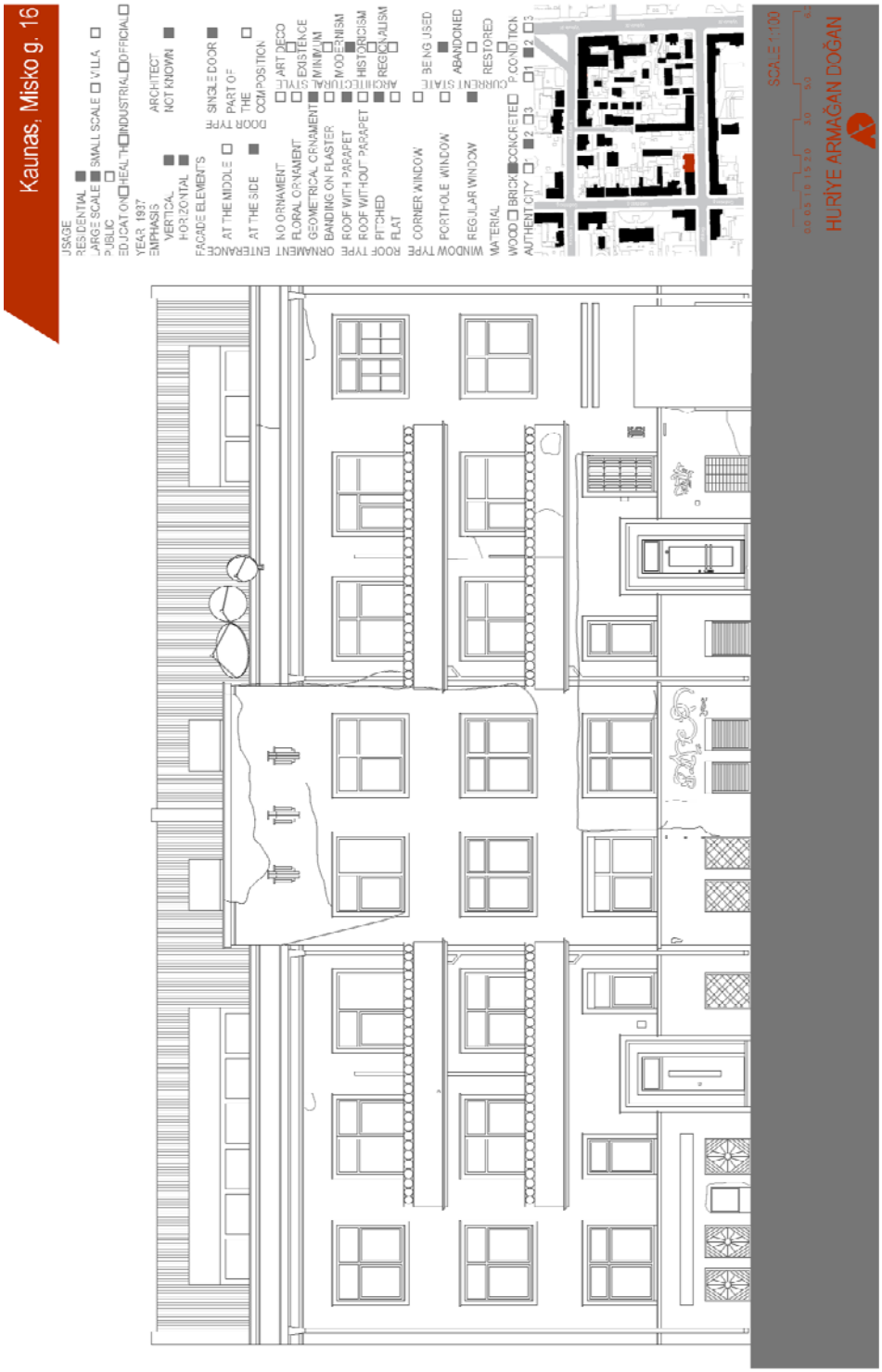
Drawing 14. Laisvės Avenue 12

Drawing 15. Laisvės Avenue 13

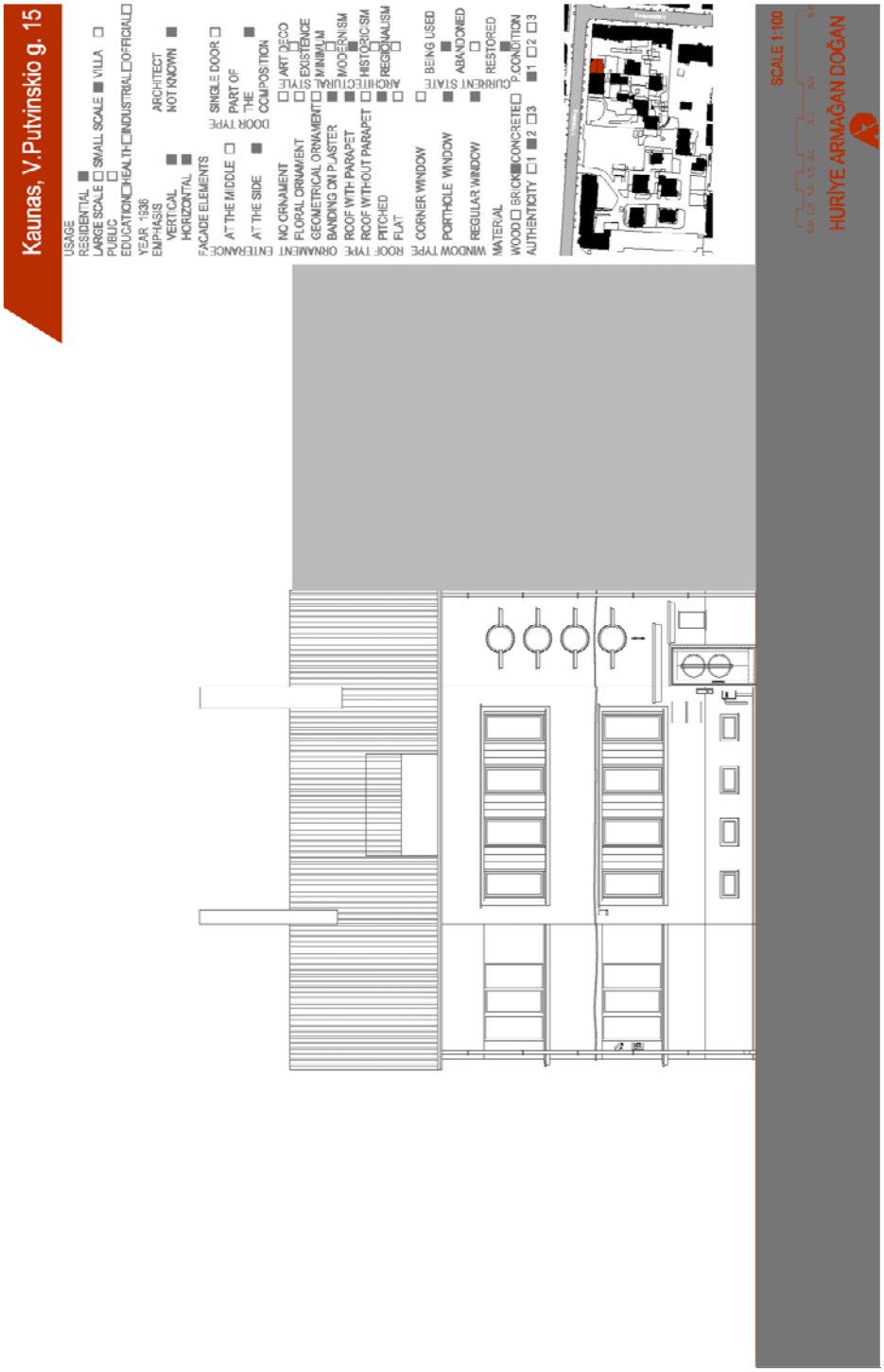
Drawing 16. Laisvės Avenue 14

Drawing 17. A. Mickevičiaus Street 27

Drawing 18. A. Mickevičiaus Street 31



Drawing 19. Miško Street 16



Drawing 20. V. Putvinskio Street 15

Drawing 21. V. Putvinskio Street 32

Drawing 22. V. Putvinskio Street 52

Drawing 23. V. Putvinskio Street 54

Drawing 24. V. Putvinskio Street 56

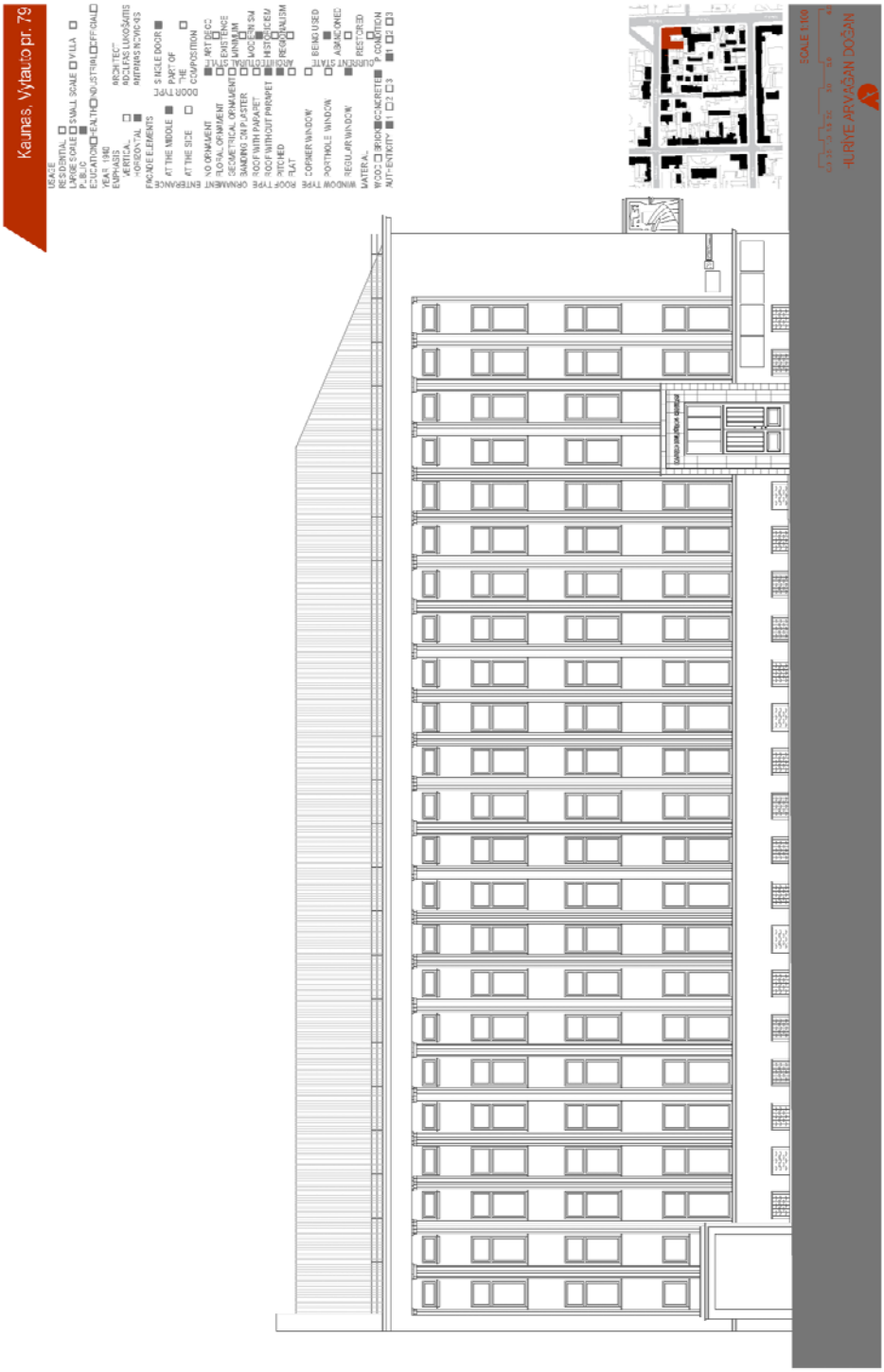
Drawing 25. V. Putvinskio Street 60

Drawing 26. V. Putvinskio Street 62

Drawing 27. V. Putvinskio Street 64

Drawing 28. Vaidilutės Street 3

Drawing 29. Vytauto Boulevard 30



Drawing 30. Vytauto Boulevard 79

ANNEXE II-EXPERIMENT I

SURVEY

The aim of this survey is analysing the indicators of the perceptions and attitudes of people towards the cultural heritage of the Modern Movement. The survey was designed to be implemented by interviews and a questionnaire to test participants' awareness of their surroundings, furthermore, to investigate the factors which have an impact on their discernment.
Fifteen (15) pairs of photographs have been demonstrated in the survey, and the participants were asked to choose the ones, which they would identify as cultural heritage in their own perception. The options for choosing in each pair are as follows:

A is cultural heritage,
B is cultural heritage,
A and B are both cultural heritage,
N neither of them are cultural heritage.

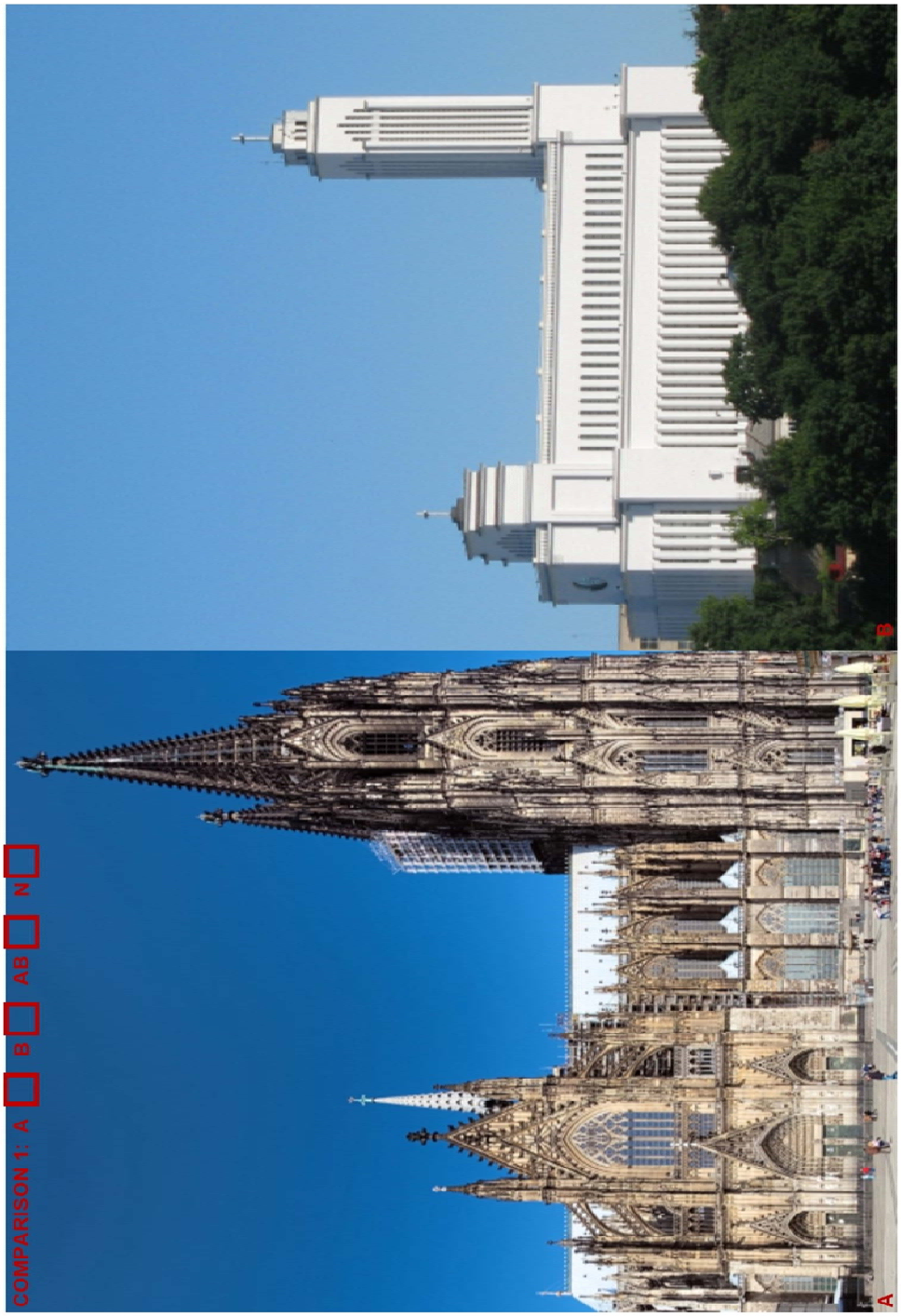


Figure 1. Comparison sheet 1 for the experiment: A: Germany, B: Lithuania

Figure 2. Comparison sheet 2 for the experiment: A: Turkey, B: Germany

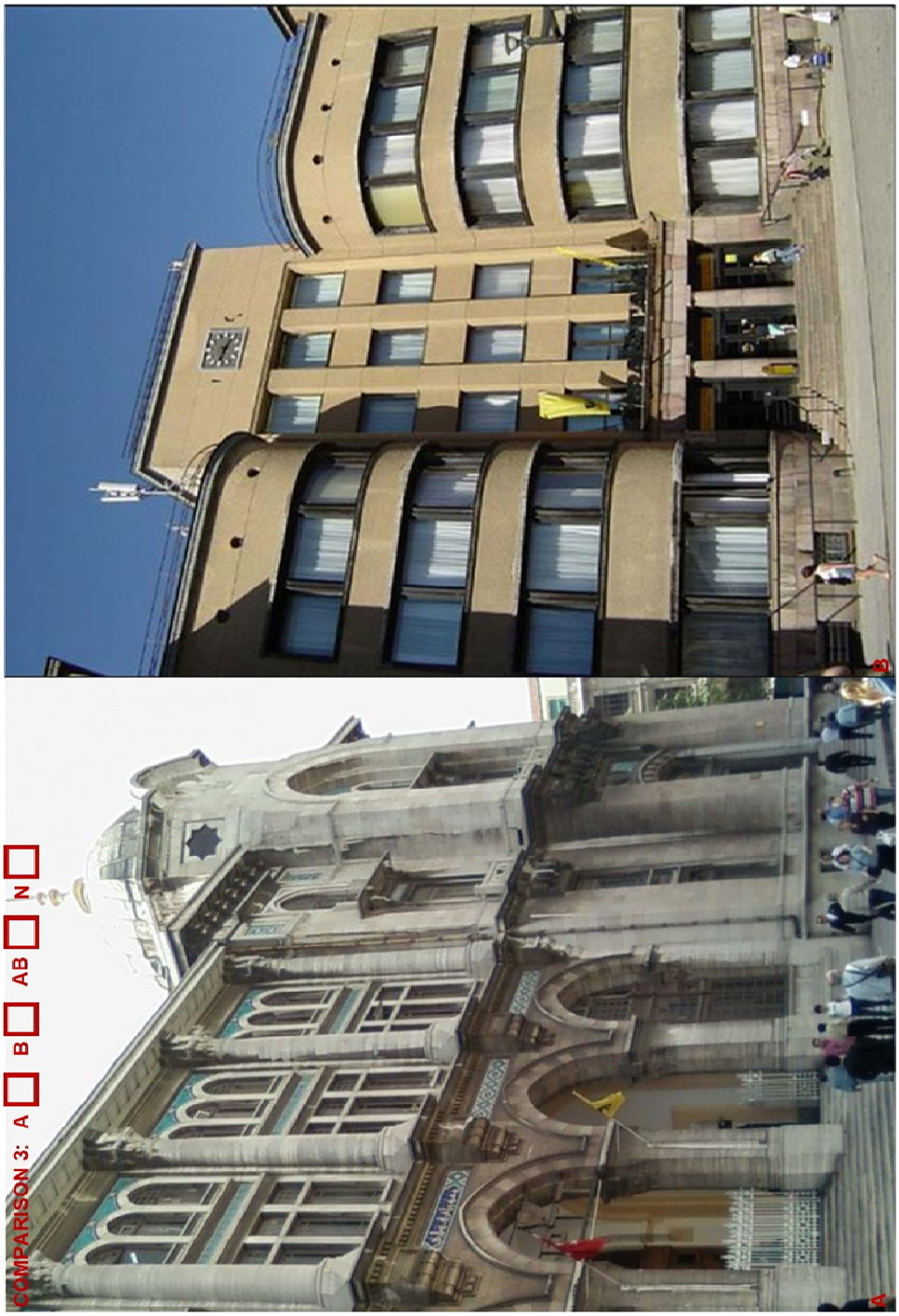


Figure 3. Comparison sheet 3 for the experiment: A: Turkey, B: Lithuania

Figure 4. Comparison sheet 4 for the experiment: A: Turkey, B: Turkey

Figure 5. Comparison sheet 5 for the experiment: A: Turkey, B: Lithuania

Figure 6. Comparison sheet 6 for the experiment: A: Germany, B: Lithuania

Figure 7. Comparison sheet 7 for the experiment: A: Lithuania, B: Turkey

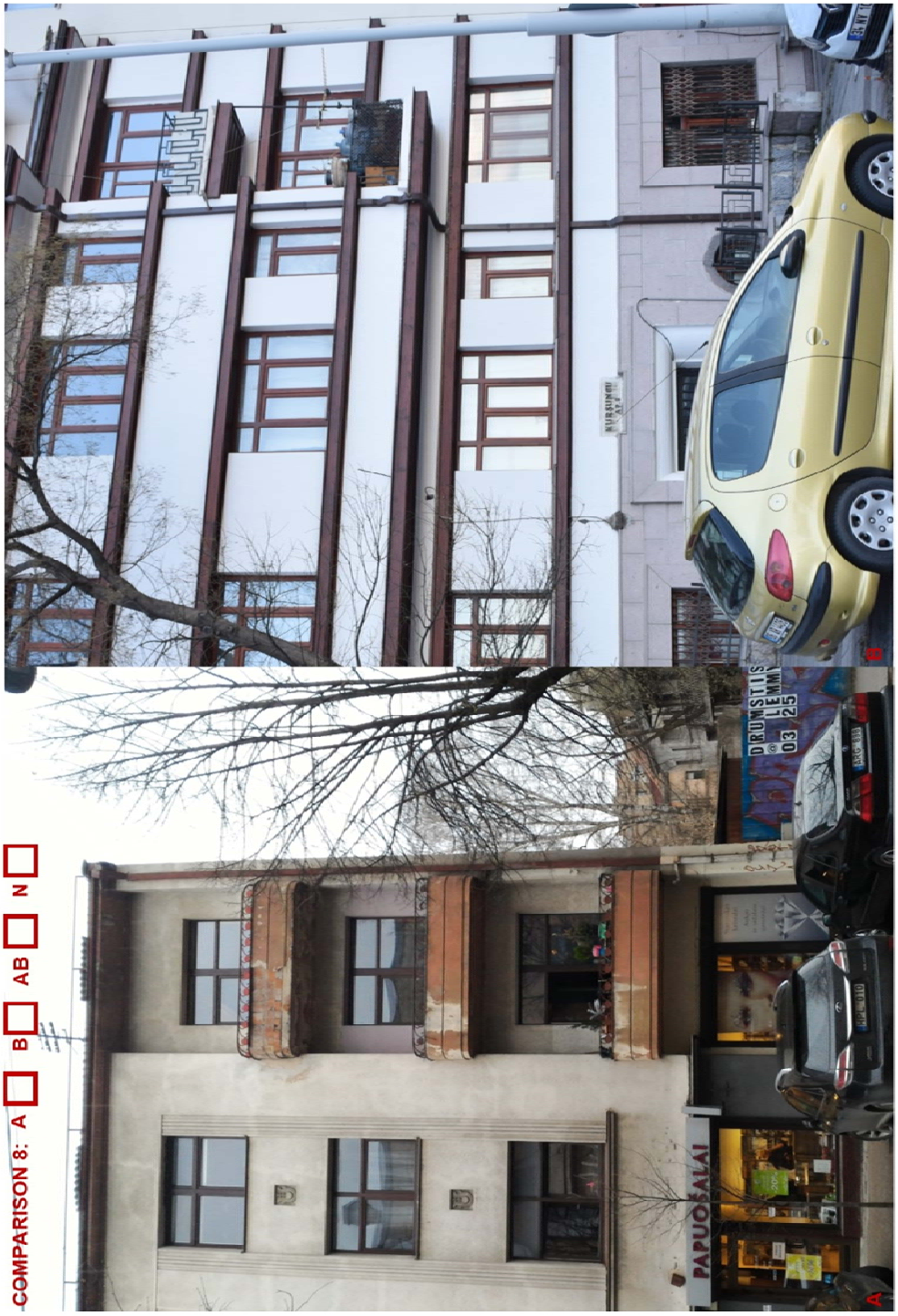


Figure 8. Comparison sheet 8 for the experiment: A: Lithuania, B: Turkey

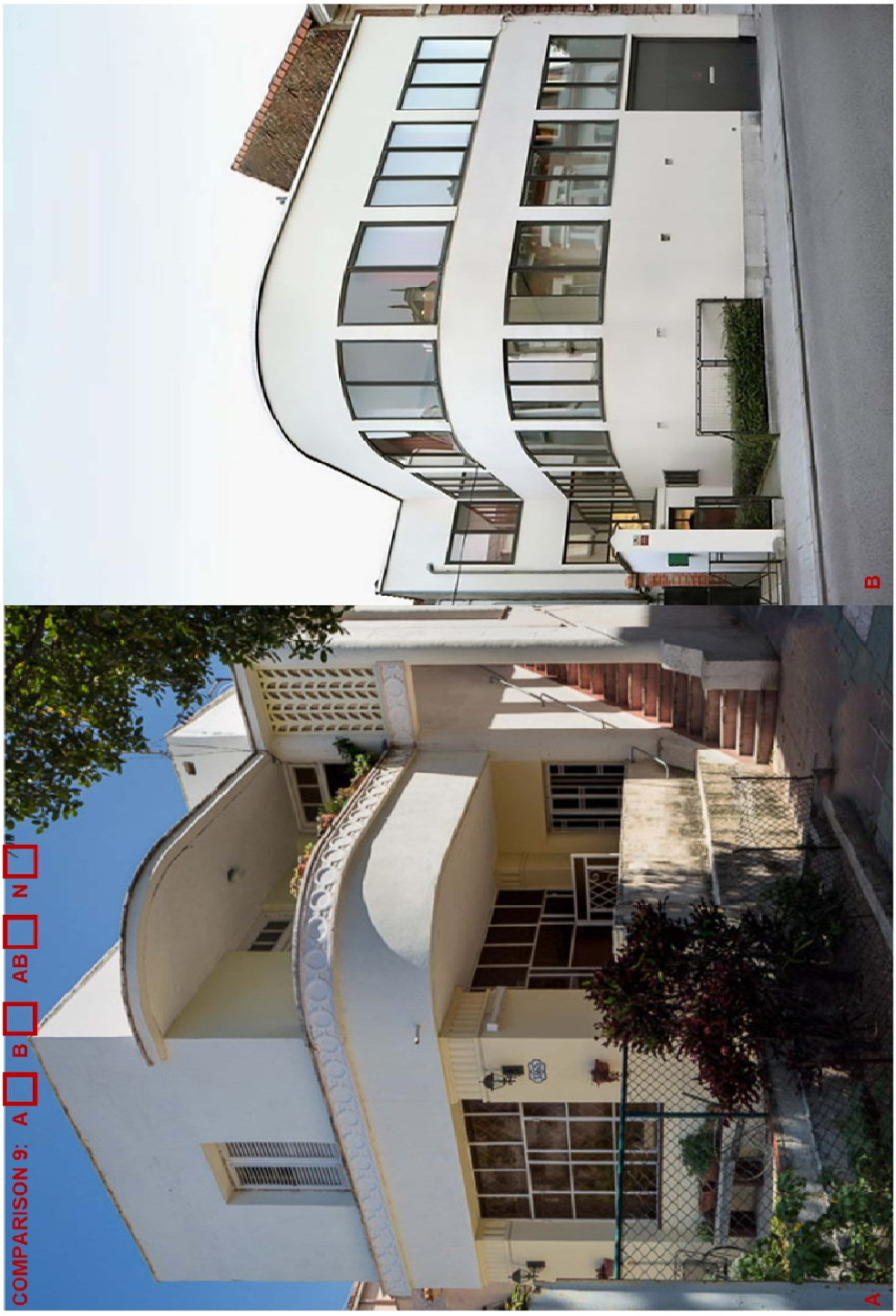


Figure 9. Comparison sheet 9 for the experiment: A: Other, B: Other

Figure 10. Comparison sheet 10 for the experiment: A: Lithuania, B: Other

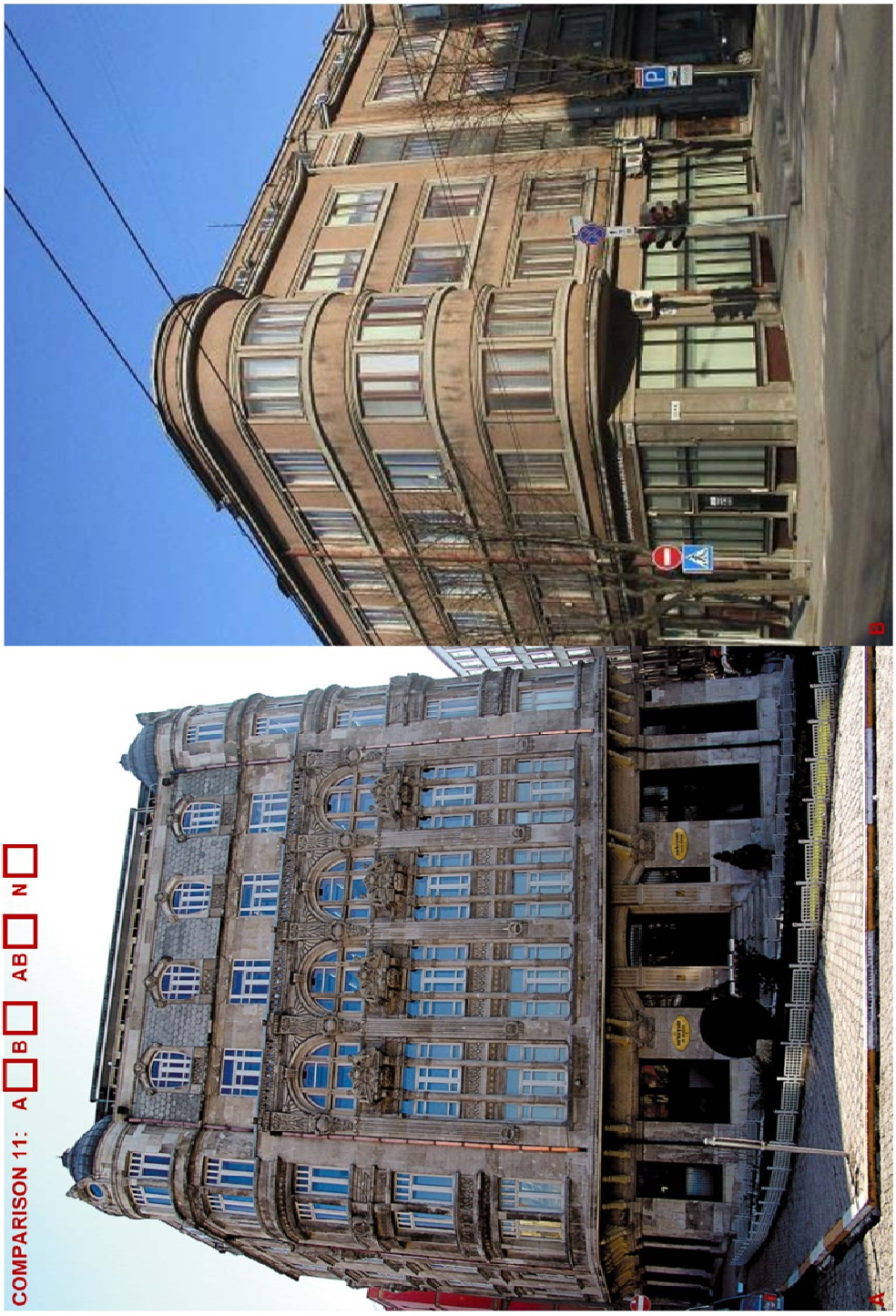


Figure 11. Comparison sheet 11 for the experiment: A: Turkey, B: Lithuania

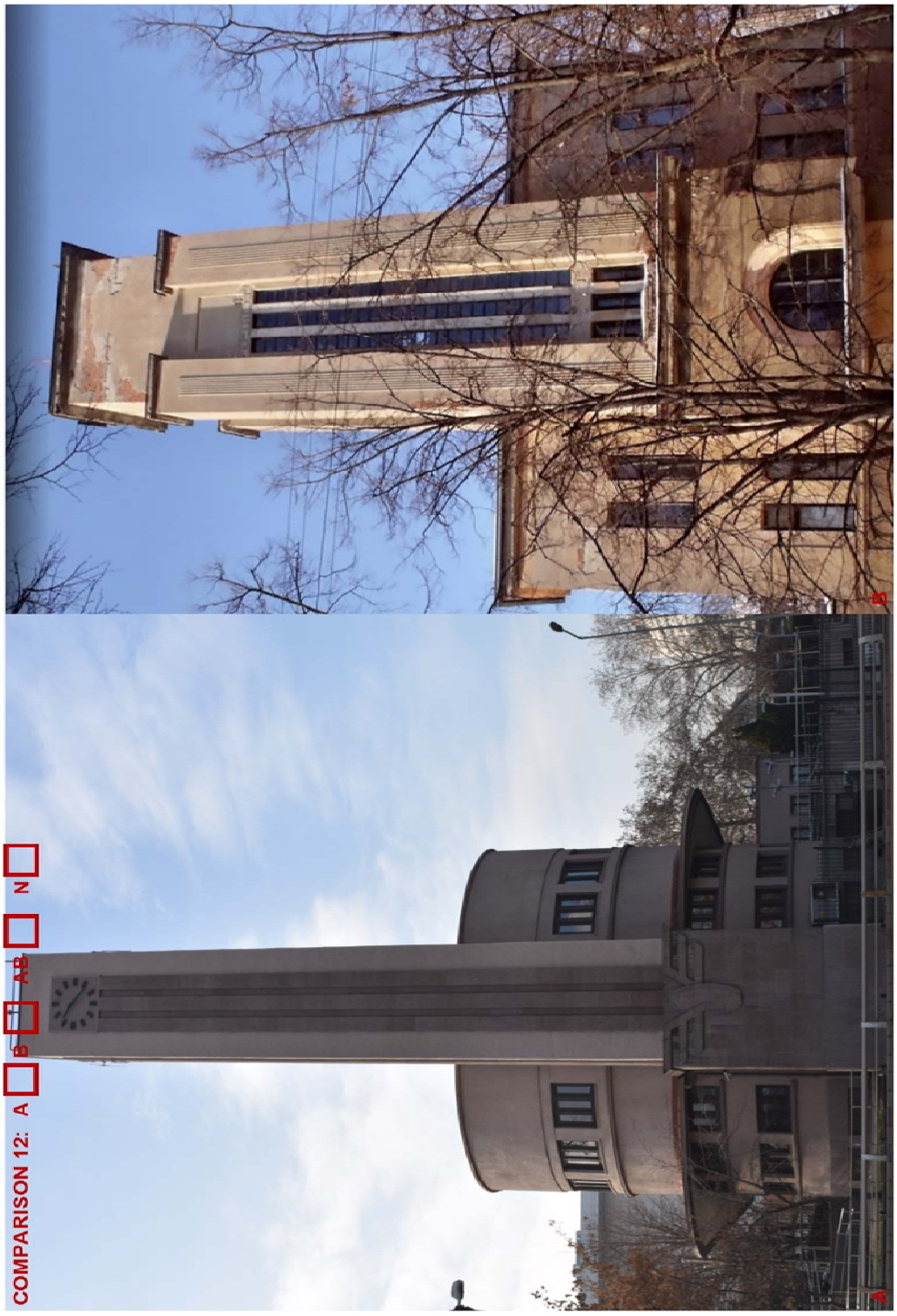


Figure 12. Comparison sheet 12 for the experiment: A: Turkey, B: Lithuania

Figure 13. Comparison sheet 13 for the experiment: A: Turkey, B: Lithuania

Figure 14. Comparison sheet 14 for the experiment: A: Lithuania, B: Lithuania

Figure 15. Comparison sheet 15 for the experiment: A: Turkey, B: Lithuania

ANNEXE III-EXPERIMENT II

Figure 16. Experiment sheet 1 for the first group of participants

Figure 17. Experiment sheet 2 for the second group of participants

SL344. 2020-08-03, 26,75 leidyb. apsk. l. Tiražas 12 egz. Užsakymas 157.
Išleido Kauno technologijos universitetas, K. Donelaičio g. 73, 44249 Kaunas
Spausdino leidyklos „Technologija“ spaustuvė, Studentų g. 54, 51424 Kaunas