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Learning in the "Post-Museum"
The Role of Architecture

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Introduction

Education is a key aspect of the identity of museums as we know them – institutions in the service of and open to the public. Museums tend to grow increasingly aware of their social and ethical responsibilities as well as their role in identity formation – all of which are implicated in the process of learning. Another aspect of the museum field that is as problematic as ever is architecture. Interpretation and mediation are considered to be the major functions of the institution. This encourages the exploration of the virtual forms of museums that do not require a physical envelope anymore. Furthermore, museum architecture is being challenged because of the restrictions it imposes on the visitor experience and the alienating effect its monumentality and sterility might create. While the current educational theories acknowledge the spatial and contextual nature of learning, relatively little research has been done to investigate what impact architecture has on meaning making in museums. Thus, a significant educational potential of museums is being overlooked.

This thesis argues that architecture's influence on learning is by no means limited to providing a comfortable space, where one is sheltered from unfortunate climatic conditions or overwhelming buzz of the city. Through its physical presence architecture can affect the embodied and performative nature of learning. It also has a strong impact on the creation and perception of conceptual museological narratives. However, in this thesis the idea of architecture is not limited to the physical building; it also comprises the discourses architecture generate and its socio-cultural significance. So, the attention is also paid to the impact buildings have on social and cultural implications of learning, such as the formation of identities and construction of collective and historical memory. In order to reveal all of these interconnected aspects, this thesis is based on various fields of discourse. It looks at recent developments in the museum studies, concentrating on the influences from the cultural studies, including but not limited to Pierre Bourdieu's concept of cultural production, as well as constructivist approach to education theory, and, finaly, communication theory.[1] This thesis also deals with a body of architectural theory that recognises architecture as a complex phenomenon of constructed nature. It critiques certain qualities closely related to Modernism and argues for the importance of phenomenology in

[1] Pierre Bourdieu was a sociologist, anthropologist and philosopher.

architecture. The method of space syntax is extensively used to investigate relationships between spatial layout, museological narrative and various aspects of learning.

In particular, this thesis looks at the approach to the developments in the museum field introduced by Eilean Hooper-Greenhill.[2] She argues that currently an important shift can be observed: that from the modernist museum to the "post-museum".[3] Less than being a finite model, however, the "post-museum" is more a direction towards which the museums tend to develop. The "post-museum" adheres to the constructivist education theory and considers learning and communication a complex process that is an inherent part of our culture. The public is no longer just "an empty vessel" – instead, museum visitors construct new knowledge on the basis of what they already know, thus creating new narratives and interpretations. Gradually the focus shifts from education, where the main player is the educator (museum), towards facilitating learning and the needs of learners. Museums start to recognise that gaining knowledge is an individual process which requires a certain interpretational freedom and interactivity.[4]

The strategies of the "post-museum" have the potential to significantly enrich our understanding of learning. Yet the relation between meaning making and spatiality is seriously lacking attention. Hooper-Greenhill states that associating a museum with a physical building is more characteristic to the modernist museum, whilst the "post-museum" could be compared to an experience or a process.[5] Nevertheless, learning is spatial, because the visitors physically and bodily engage in it through active experience and performance. Movement and the use of all senses are inevitable. Furthermore, learning is a social act, which is directly related to identity formation – and architecture is capable of not only supporting, but also inducing social and cultural processes. Finally, architecture is an essential prerequisite for most museums due to the need for preservation, storage, a particular spatiality that distinguishes them from other institutions and so on. To overlook the potential that architecture has in the learning process would simply impoverish the development of the "post-museum".

In order to study the relationship between learning and museum architecture this thesis uses the approach of Suzanne MacLeod.[6] The author looks at a branch of architectural theory

[2] Eilean Hooper-Greenhill is Emeritus Professor of Museum Studies at the University of Leicester.
[3] Hooper-Greenhill 2000, Chapter 7.
[4] *Ibidem*, Chapter 1.
[5] *Ibidem*, Chapter 7.
[6] Suzanne Macleod is Director and Head of School of Museum Studies at the University of Leicester.

originating in the 1980s that suggests an alternative approach to Modernism by turning to human and social bodies. Architecture is seen as a social and cultural production and as a result of power struggles and politics.[7] Thus, instead of providing a neutral setting for learning, museum architecture plays an active part in it. Architecture is also understood as a set of practices rather than a finished object. Furthermore, the processes of occupation, appropriation and representation are brought into the spotlight by recognizing architecture as a "medium in and through which life is lived".[8] Thus, the focus is shifted from the dominant concentration on the activity of architect and formal developments in architecture to the users and their practices.

Finally, in order to narrow down the scope of the research, the analysed age group is limited to adult learners. They are usually more or less aware of socio-cultural and historical implications of museum spaces and are visiting by their own choice, as opposed to children who are less aware of these hidden meanings and are usually taken to museums by adults. In order to explore the potential of museums as settings for learning, contemporary art, history and anthropology museums are considered. While recognizing the rich variety of museum practices all around the world, this research is based on the "Western" tradition of museums – the most of the main examples are located in Europe. There are several reasons behind this choice. The museological and architectural theories on which the main argument is based are developed in clear opposition to the Modernism – a movement in a broader philosophical sense and a more specific development in the field of architecture – as it is understood in the "Western" tradition. These theories argue for certain changes outlined above that imply the current realities in the European and North American museum scene: the diversification of the public, the recognition of museums' involvement in power struggles and ethical responsibilities related to them, the position of the "Western" museums in the post-colonial world, impact of globalisation and entertainment industries – the list could go on. While it is not in the scope of this research to explain this variety of underlying issues, it is important to bear them in mind throughout this thesis.

Chapter One introduces the theoretical background. The main focus is on how treating architecture as both, a field of cultural practice and a set of practices (including design process, appropriation and production of discourses) can enrich our understanding of it impact on learning

[7] MacLeod 2013, p. 25.
[8] *Ibidem*, p. 7.

in museums. Examples of architecture exhibitions are presented as a possible way to experiment with this approach to the built environment. In addition to this, the concept of the "post-museum" and the constructivist educational theory are explained in more detail. Learning is shown as a construct and the role of curiosity as well as expectation in the meaning-making process is analysed.

Starting with *Chapter Two,* the research begins the overview of the possible practical implementations of the theory. The chapter discusses the role of architecture in providing physical and psychological comfort for the visitors as well as helping them orientate in the museum environment, while providing freedom of movement at the same time. The method of space syntax is introduced in order to analyse how spatial solutions can help the visitors orientate themselves, shape visiting patterns, and support a pedagogical intention.

Chapter Three concentrates on how the materiality of architecture contributes to the embodied learning experience in museums. The phenomenological perspective reveals the importance of using all of our senses when experiencing the built environment and learning. The chapter also looks at the ways sensory involvement relates to emotional responses and, eventually, meaning making in museums.

In *Chapter Four* the implications of architecture on social and cultural nature of learning are explored. By using space syntax the chapter looks at how the social aspects of learning can be promoted through the spatial organisation of museums. The second part of the chapter concentrates on the cultural nature of meaning making and its influence on shaping social and individual identities. The phenomenological approach is employed to study how this is done through the process of identification with a place embodied in a museum building.

Chapter Five studies how architecture supports and constructs museological narrative which is a primary mental structure used to convey educational messages. Dealing with the passage of time and constructing memory are seen as two main outcomes of this process. Finally, the chapter explores the relationship between learning and performativity – an embodiment of narrative – prompted by theatricality of architecture.

Chapter One.
Architecture and the "post-museum". Theoretical background

Architecture as a set of practices and a field of cultural practice

In recent decades the world has witnessed a boom in new museum buildings as well as expansion and renovation projects. Significant investments, technological developments and new approaches in museum studies enable architects to experiment with innovative architectural forms and thus challenge the institution by offering a range of new uses and purposes of the building. These factors, combined with publicity, have made large museum projects a prize commission for architects. In hope of international interest, urban renewal and increased investment, governments all over the world support such developments and seek well renowned architects to build museums. Iconic buildings might prove beneficial for the public image of the institution and even a whole city or area, but in many cases other qualities necessary for the functioning of a museum are sacrificed. The field of museum studies also tend to fixate on a limited number of iconic large-scale projects and presenting them as an endeavour that concerns solely the architect. Furthermore, the buildings are frequently represented and analysed in an abstracted state when they are being neither constructed nor used, which in reality is just a blink of an eye in the entire existence of the building. What is overlooked here is the complex nature of the process of making architecture.

Whilst it might be the name of the architect that is usually associated with the project, museum professionals should be very much a part of developing a new building. It is not only the main functions of the museum that have to be catered to. The museum building is also anticipated as serving the community and stimulating institutional change. The latter expectation might be met if the design offers an alternative use of space in relation to museum functions or even suggests accommodating completely new functions in the building. A famous example is Centre Pompidou in Paris. The open access from the square adjacent to the building, the immense ground floor space and, via the escalator, the rooftop means unprecedented public accessibility and a lively connection with the urban environment. The building accommodates

not only galleries for temporary and permanent collections, but also a library, book stores, a cinema, conference halls, a fine dining restaurant and a shop, thus representing an exceptional amalgamation of functions. Whether it is the best environment for the appreciation of art is a different question. What is important to consider in terms of this research is that such expectations for a building can hardly be met by the architectural office alone.

In order to explore possible connections between the workings of museums and architectural planning processes and outcomes, MacLeod draws on a body of theory that acknowledges architecture as being involved in "politics, power, shared social meaning, individual identity formation and a sense of self".[9] On one hand, architecture is understood as a sequence of interrelated activities exercised by architects, museum professionals and the public rather than just the finished object. Museum buildings are seen as social and cultural productions that are made not only by building the physical matter, but also through use, interpretation and occupation.[10] Thus, architecture is a phenomenon rooted in time and space as well as an agent in the processes of identity formation and meaning making. Spoken and written discourses developed in order to mediate architecture to the public are as important as the physical presence of the building. Keeping to the constructivist approach to learning:

> Our understanding of architecture is shaped through a complex of inherited knowledge, architecture we see and experience and things we read or are told about architecture through images and texts produced by the architectural profession and within the tightly controlled parameters of their practice. Architecture is, in this sense, a system, just as fashion is to clothing.[11]

On the other hand, architecture is, as Pierre Bourdieu describes it, a "field of practice", in which the main actors are architects pursuing cultural, economic, social and symbolic capital. Architecture is only one of many semi-autonomous fields of practice that on a bigger scale constitute the social space. The museum scene could be described as another field of practice. An important characteristic of these fields is professionalisation which, according to Bourdieu, is a

[9] MacLeod 2013, pp. 5-6.
[10] "A building is remade each time it is represented in another medium, each time it is occupied and appropriated for some new use, or each time its surroundings change." *Ibidem*, p. 7.
[11] *Ibidem*, p. 15.

way to define and allow or refuse somebody a position in a field.[12] This is reflected in the limited involvement of museum professionals in the process of making architecture on the premise that they do not possess the required technical knowledge. According to MacLeod, the highly specialist approach to the architectural process makes those less acquainted to the technical aspects feel excluded. This is why valid questions and concerns that museum professionals have about their future working environment are often discarded as not "serious" enough.

Furthermore, the fields are "battlefields" for symbolic and material struggles, clashes over various positions, political strategies and inequalities. At the same time they are "force fields" that inform the practices, values and beliefs of the actors, whether these are individuals or institutions. It is not within the scope of this research to further explore the subtleties of Bourdieu's theory. It is sufficient for our purposes to understand that architecture is a field of cultural practice with various tensions and hierarchies among the actors as well a set of practices involving various professions.[13] Thus, architecture is no longer limited to its physical form and the idea of the primacy of the architect's genius can be challenged. This opens up the process of making architecture to dialogue and active participation of museum professionals and even the public.[14] Finally, expanding the definition of architecture allows a richer analysis of its role in learning, which can be analysed from social, cultural and phenomenological perspectives.

Architecture exhibition as analytical tool

MacLeod argues that a discourse is essential in forming our perception of architecture.[15] One of the ways of analysing the potential of architecture is by positioning it as a subject of this discourse in exhibition environment and asking such questions as: *How* is architecture represented? What can we learn *from* and *about* architecture as a result of such representations? According to the constructivist theory of education, museum visitors build on their former knowledge when learning instead of starting from *tabula rasa*. If so, how do things that we already know about architecture affect learning at museums? Samantha L. Martin-McAuliffe and

[12] Bourdieu 1993, cited in MacLeod 2013, pp. 15-16.
[13] *Ibidem*, p. 16.
[14] MacLeod 2013, p. 6.
[15] *Ibidem*, p. 16.

Nathalie Weadick contend that buildings often generate the strongest impressions in visitors by evoking such evasive sensations as memory, identity, emotion, character as well as social interaction.[16] The authors argue that film is one of the possible ways of making these processes more transparent. Martin-McAuliffe and Weadick recognise the subjectivity of the lens, as well as the sensory limitations of this purely visual and audial medium, but stress its potential to reveal architecture's relation to time, history and social processes.[17]

The majority of the exhibitions that include conventional representations of architecture, such as plans and models, imply that the only authentic experience of architecture is visiting the building, thus paradoxically revealing their intrinsic representational limitation. Martin-McAuliffe and Weadick argue for a different kind of experience and offer the exhibition *The Lives of Spaces* as an example.[18] (Fig.1) Through film the exhibition concentrates on symbolic and social meanings of space by looking at buildings as singular stories related to particular events and individual experiences. An idea is put forward that the memories and meanings associated with the space do not disappear after the physical "container" – the building – is destroyed. The space, in this case, is strongly embedded in time, because it includes not only buildings existing in the present, but also those under construction or even already demolished.[19] Furthermore, by representing buildings in their everyday use and thus stressing their ordinariness instead of timelessness and sacredness, the exhibition makes the user feel as implicated in and close to the built environment as possible.[20] Arguably, presenting "ordinary" emotional and psychological experiences as an equally enriching way to encounter architecture makes the buildings more accessible in real life.

[16] Samantha L. Martin-McAuliffe is an architectural historian. Nathalie Weadick is Director of the Irish Architecture Foundation.
[17] Martin-McAuliffe and Weadick 2012, p. 278.
[18] Ireland's exhibition at the 11th International Architecture Biennale in Venice in 2008.
[19] Martin-McAuliffe and Weadick 2012, p. 281.
[20] *Ibidem*.

Fig.1. *The Lives of Spaces* – An exhibition on architecture where the main medium is film.

Understanding architecture as an ever-changing phenomenon embedded in spatial and chronological particularities is based upon the idea that during each encounter a building can evoke different interpretations due to the altered perception of the viewer, actual physical changes of the built object (weathering, renovation, change in function, etc.) or large scale developments (political, economical, cultural, etc.) that transform the way we perceive values and meanings expressed by the physicality of architecture. Acknowledging the flexible, constructed and contestable nature of architecture allows challenging the focus on visual perception. From this point of view museum buildings are not just neutral physical containers of collections. They are seen as active agents affecting the way visitors perceive museums and their contents.

Florian Kossak presents another approach to curating architecture – "productive exhibitions" – that offers the possibility to conduct experimental and critical exercises of developing architectural solutions.[21] This approach allows the non-professional public a certain accessibility to, and even participation in, innovation processes within the field of architecture.[22] In order to develop the idea, Kossak turns to the multi-layered relations between early-modern

[21] Florian Kossak is a Lecturer at the University of Sheffield, School of Architecture, where he directs the MA in Urban Design programme.
[22] Kossak 2012, p. 213.

collecting practices and built forms. Between the fifteenth and eighteenth centuries, architectural typology of museum buildings as we know it did not exist, neither was it institutionalised. Furthermore, a museum was more an immaterial concept, as the term itself could mean the collection of objects or the building containing it. Furthermore, "museum" was interrelated and even interchangeable with other real or ideated spaces of collecting, production of knowledge and representation of the world, such as a microcosm, a garden, a theatre or a library. A lot like the early-modern "museum", "productive exhibitions" would be a place of study and deliberation, conceived of and maintained by the actual producers of architecture. However, the exhibitions would differ from their early-modern source of inspiration because the non-professionals would be allowed not only to learn about architecture, but also to become a part of the production.

These alternative approaches to curating architecture imply the openness of the architectural profession to various collaborative endeavours. "Productive exhibitions" could be the first step of an inclusive design process, during which a community together with museum professionals would be involved in creating their own museum and, in turn, their own learning space. This way not only built forms, but also the discourse accompanying them would be constructed in an open and collaborative environment. In addition to this, the way film was used in *The Lives of Spaces* exhibition in order to understand the layers of meaning embedded in architecture can transform the way we learn in museums. According to the constructivist theory of learning, all knowledge is "situated" in the physical context rather than simply "enveloped" by it.[23] Understanding, or at least being aware of the meanings attached to spaces, the visitors will perceive the learning environment differently, which will in turn add to the learning process. Finally, both approaches can contribute to perceiving ordinariness intrinsic to any – even the most "iconic" – building, which in turn will make it look a more welcoming and accessible learning environment. This could reduce the level of stress induced by the overwhelming monumentality of or unfamiliarity with the building.[24]

[23] Falk and Dierking 2000, p. 114.
[24] *Ibidem*.

Constructivist learning in the "post-museum"

Alongside museum architecture, another key field studied in this thesis is learning in the "post-museum". Here the constructivist theory of education replaces the vastly prevalent model of knowledge transmission based on behaviourist episteme.[25] Constructivism understands knowledge as being entirely constructed by the learner. The "post-museum" acknowledges being responsible for actively constructing interpretations by combining disparate artefacts into unifying narratives and offering them to the public. Instead of presenting one unquestionable interpretation of the display, multiple interpretative paths are offered in both intellectual and physical space, thus representing and constituting multitude of identities and experiences. According to constructivism, new knowledge is always built on prior knowledge, which also influence the way visitors learn at the museum. George E. Hein even argues that if the primary knowledge contradicts the presented materials, it is the meaning of the latter that will be distorted.[26] This is why the neglect of prior knowledge in designing educational materials might result in the visitors learning something completely different from the intended message.[27] In order to avoid this, the museum has to know its public, its needs and interests.[28]

Constructivism also argues that "learning consists of selecting and organising from the wealth of sensations that surround us".[29] The learner is offered various modalities to experience the display and acquire information in recognition of different learning techniques that visitors employ. In order to facilitate this process, the focus is moved from the content of the museum to the educational needs of the visitors. Hence, use and mediation of the objects becomes the major concerns of the "post-museum", whilst the scope of accumulation of artefacts is significantly reduced. It also allows the museum to transcend the physical building: the means of communication are extended beyond the walls of the museum. Instead of remaining the main

[25] Hooper-Greenhill 2000, pp. 152-153.
[26] George E. Hein, Professor Emeritus at Lesley University, is active in visitor studies and museum education as a researcher and teacher.
[27] Roschelle 1995, p. 37.
[28] As Hooper-Greenhill observes in her writings, the visitor research methods evolve alongside the changing understanding of the learner and the learning process. It is, however, not within the scope of this research to go deeper into this field. See Hooper-Greenhill, E., *Museums and Education: Purpose, Pedagogy, Performance*, London and New York: Routledge, 2007.
[29] Hein 1995, p. 21.

means of communication; exhibition becomes only one of many ways to reach out to the public. In addition to this, Hooper-Greenhill suggests expanding the network of museums by increasing the number and impact of the museums located outside the traditional cultural centres. The relationship between the professionals and the audience is also rethought: partnership, responsiveness and diversity are valued over objectivity, rationality, order and distance. Finally, meaning making is expected to be balanced somewhere between education and entertainment. It should be interactive, inspiring, resulting in creativity and bringing enjoyment.

In order to do this, Hein suggests motivating learners by purposely "enticing the learner by the lure of the familiar, the comfortable, the known, to explore more deeply".[30] At the same time presenting them with just the right degree of intellectual challenge makes the visitor slightly uncomfortable and unsettled by the unknown, but sufficiently oriented, able to recognise the challenge and curious.[31] Curiosity, which is a natural human response to novelty, evolved to facilitate learning, while learning is driven by the need to satisfy curiosity.[32] Based on their previous experiences free-choice learners tend to know in advance that participation in a certain activity will stimulate their curiosity and this expectation motivates their learning process. John H. Falk and Lynn D. Dierking argue that the reason behind this is that expectations and the constant need to check their accuracy are what guide our behaviour in general.[33]

According to Hooper-Greenhill, such combination of that which could be considered familiar or safe with the unfamiliar or potentially dangerous results in challenging environment and is likely to increase the resilience and resourcefulness of the learner, which is a part of identity-making.[34] Successful learning, including the overcoming of difficulties, boosts resilience which results in an increased capacity to continue no matter the problems encountered along the way. Resourcefulness asserts itself through the confidence of the learners and their ability to shift from one method of making sense to another more suitable to the given situation. In the context of the today's fluid and constantly changing society where learning is no longer understood as

[30] *Ibidem* 1998, p. 176.
[31] *Ibidem*.
[32] Falk and Dierking 2000, p. 115.
[33] *Ibidem*, p. 116.
John H. Falk and Lynn D. Dierking are, respectively, Director and Associate Director of the Institute for Learning Innovation, Annapolis, Maryland.
[34] Hooper-Greenhill 2007, p. 180.

the mastering of large bodies of knowledge, the main concern is to shape personalities who know how to learn and who have strong identities.

Nevertheless, it is important to rethink not only *how*, but also *what* we learn in museums. Hein criticises what he sees as a general tendency to build thinking primarily on aesthetic, economic or even political messages and gains, whilst forgetting visitor-related goals. The traditional emphasis on cultural messages, often based on the value attributed to the classical culture, is often a less effective and, in some cases, even derogatory way of communication, since only some groups within society have knowledge of and relate to it. Furthermore, certain qualities often found in "traditional" museum architecture, such as monumentality, relate architecturally to other institutional bodies (law courts, police stations, and other agents of social control) that might cause negative response due to general associations of power and supremacy or even negative individual experiences.[35] Another important factor to consider is that museums, as opposed to schools or universities, do not have a set curriculum, do not require attendance, do not have a continuous system for evaluation and are usually open to a very wide range of age groups.

Hence, adjusting museum architecture to the constructivist learning model means that each architectural project has to be carefully adapted to each particular case with significantly increased interest in individualisation of museum buildings rather than striving for some universally applicable answers. The museum professionals and the visitors should not be seen only as *eventual* users. Involving these interested groups in the process of making architecture, even if it is only done on the theoretical level in the types of exhibitions mentioned earlier, might move the focus from the formal developments to the accommodation of the actual user needs. Together with Hooper-Greenhill's idea of decentralisation, this means a certain level of de-globalisation and more attention to local realities and architectural landscape. These processes can be facilitated by treating architecture as a set of practices rather than just the finished object and by recognizing certain tensions inherent to architecture as a field of cultural practice. The following chapters analyse architecture based on these principles and explore the impact the built environment has on the multiple aspects of learning. The practical implementation of this influence is studied through a variety of examples.

[35] *Ibidem* 1988, p. 225.

Chapter Two.
Spatial comfort and learning

Comfort, orientation and spatial organisation

In order to create a physical museum environment suitable for learning, certain basic needs of visitors have to be met. First of all, learners need freedom of movement – a restrictive environment does not allow the visitor to choose a path within the display and thus limits the individual process of meaning-making. At the same time learners need to feel comfortable. This dimension can be extended from simply providing physical comfort by, for instance, installing benches, to matching the human needs for sensory stimulation without aggressively affecting the senses and thus causing irritation.[36] Hein's concept of enticing learners by providing an identifiable and surmountable challenge can be realised through the spatial and physical qualities of architecture. However, caution should be taken not to overwhelm learners with too much of the unknown and ensure that the design does not exceed their adaptive capabilities. Otherwise, the experience can simply be misleading and confusing. Whilst visitors should feel free to move through the space, they still need a certain level of guidance. They need to feel in control, which can be achieved by informing them in advance on what to expect.

According to Hein, the comfort of museum learners is actually a combination of environmental factors and other variables.[37] It can be subdivided into three categories: physical, psychological and socio-cultural comfort. Increasing the level of physical comfort can reduce the level of museum fatigue and thus expand the visitors' learning capability. Providing places to rest and placing them in strategic zones throughout the display, so that they complement the intended pace and rhythm of the exhibition, is a commonly used solution. The notion of physical comfort also includes designing convenient facilities (lavatories, lifts, etc.) and locating them in easily accessible locations, which brings us to accessibility in general and the concept of "universal design" – which can be described as efforts to extend physical and intellectual access to the entire population. "Universal design" is not culturally determined and focuses on universal

[36] Olds 1990, pp. 10-12.
[37] Hein 1998, p. 166.

human needs. The main idea is that if the environment is friendly to handicapped visitors, then it will also meet the needs of everybody.[38] Psychological comfort is a more evasive concept, as it is highly influenced by the level of physical and socio-cultural comfort as well as our general perception of the environment.[39] This chapter mainly deals with physical and psychological comfort, while the socio-cultural dimension of this discussion is studied in *Chapter Four*.

Spatial orientation is crucially important for the visitor comfort and, consequently, for the learning process. Falk and Dierking observe that a greater part of visitors, especially those visiting a museum for the first time, tend to start by looking at the space rather than maps or signage.[40] Furthermore, people construct mental maps that allow them to know where they have been and make predictions about where they are going. While situations in which new information confirms prior knowledge tend to be comfortable, new experiences that are at odds with presumed knowledge might bring anxiety and the feeling of loss of control. Thus, a visitor that comes to a particular museum for the first time or has a very limited experience of museum buildings in general can find the visit stressful. Prior knowledge of what to expect – or an advance organiser – can help visitors to feel more comfortable. Easy orientation within a space is sort of an advance organiser.[41] It is possible to let the visitor know what to expect by providing at least a partial overview or hints of the coming spatial experience. Environmental psychologist Gary Evans contends that there are various features of the built environment that facilitate navigation and orientation:

> Interior settings that conform to relatively simple, overall geometric patterns; well marked and bounded distinctive subsections or districts; interiors with views of the surrounding external environment; and spaces with interior grid patterns (i.e., parallel interior hallways and ninety-degree intersections) that indicate both direction of movement and extent of progress as the path is traversed.[42]

[38] Burda 1996, p.24.
[39] Hein 1998, p. 166.
[40] Falk and Dierking 2000, p. 114.
[41] *Ibidem*, p. 117.
[42] *Ibidem*.

Orientation in museum space is also affected by a search image that virtually all museum visitors possess – "a general image that a person keeps in mind of what is being sought".[43] As opposed to mental maps that are usually about space, search images are about objects. The categories can be very general, for example a type of visual art such as painting or sculpture, or more specific as with a painting of a particular style. Search image can also be specific to a concept, for instance a historical period. The more experienced the visitor is, the more sophisticated, specific, close to reality and thus easy to satisfy the search image is. Once again, such behaviour follows the hypothesis that if our expectations are met, we find this very reinforcing and continue. However, if the reality conflicts with our search image we may still become curious and proceed, but are more likely to skip the discrepancy or get stressed because of it.[44] For this cognitive process to function successfully, the visitor has to be able to concentrate and not be overwhelmed by abundant distractions. A complex environment, such as found in museums, can easily overload the senses and thus obstruct the learning process.

One way to help museum visitors find their way and follow the conceptual development of the display is to present the exhibits in clusters. Such organisation might not only respond to possible search images that visitors bring to the museum, but also allow them to effectively manage their attention. A study by Falk at the Smithsonian's Natural History Museum showed that the linear configuration with concepts as consecutive chapters, proved to be less effective in communicating the intended narrative than the exact same material arranged in clusters of conceptually linked exibits.[45] Falk and Dierking stress the fact that "experienced visitors can look at a display and [...] in a given amount of time see more and remember more than inexperienced visitors. This has nothing to do with intelligence and everything to do with experience and training."[46] Cognitive psychologists refer to this ability to perceive more information per unit of time as "chunking" information. The main advantage of chunking is that it allows humans to process a significantly larger amount of information than they would be capable of when processing each item separately. Experienced museum-goers are able to chunk

[43] *Ibidem*, p. 118.
[44] *Ibidem*.
[45] Falk 1997a.
[46] Falk and Dierking 2000, p. 119.

the contents in higher-order categories. This leads to taking in more of the content of exhibitions, including recognition of complex relationships and appreciating overarching concepts.[47]

These cognitive processes can be significantly facilitated by conceptually organizing the space. Exhibit location and arrangement directly affect concept development. For instance, the closer to the entrance the display is, the more people visit it. Also, the visit usually begins with the exhibition gallery on the first floor and to the right, and visitors' attention is drawn to the first item they perceive, whether or not it is the first item in the layout of the exhibition.[48] John Peponis and his colleagues analysed the relationship between layout and visitor behaviour in open-plan exhibition settings that allowed almost any pattern of movement and unobstructed visibility.[49] The researchers observed that visitors' contacts with the exhibits (i.e. their awareness of artefacts) were determined by variations in direct accessibility. The pattern of these contacts was influenced by thematic chunking and their sequence resulted from a conscious decision based on thematic labels.[50] Finally, visitors' engagement with the objects was affected by the degree of cross-visibility between individual exhibits. The results of Peponis's research imply that the design of space can establish relationships between objects which are otherwise equally accessible or visible, and influence the perception and cognitive mapping of displays.[51]

However, it is not enough to rely on design when organising the display. Even if exhibits are clustered according to overarching concepts, there are relationships within this higher level of organisation too.[52] As museum visitors tend not to interact with the display in a linear or sequential manner, it has been proven useful to complement the design with consistent conceptual organisers, such as colour coding or labels. Such additional information can guide visitors' attention from one cluster to another and explain the relationships between them. Humans have a well developed ability to perceive order and tend to seek it in their environment. Thus, helping them detect the underlying arrangement will significantly ease their orientation in space and, consequently, will prove beneficial for learning.[53] Furthermore, the conceptual

[47] *Ibidem*, pp. 119-120.
[48] *Ibidem* 1992; Falk 1993.
[49] John Peponis is Professor in School of Architecture at Georgia Institute of Technology.
[50] Peponis et al., 2004.
[51] *Ibidem*.
[52] Falk and Dierking 2000, p. 122.
[53] *Ibidem*.

organisers are very important, because when informed in advance about what is about to happen, the learners feel "comfortable, more able to engage with the exhibitions and, therefore, better able to learn".[54] In conclusion, due to the inexhaustible variations possible in design and curatorial decisions, exhibitions can produce learning experiences that are very powerful exactly because they are easy to orientate in and understand.[55]

Space syntax and orientation

In order to better understand how spatial solutions can help the visitors orientate themselves, shape visiting patterns, and support a pedagogical intention, the method of space syntax proves to be useful.[56] Bill Hillier and Kali Tzortzi define space syntax as "a theory of space and a set of analytical, quantitative, and descriptive tools for analyzing the layout of space in buildings and cities".[57] In museums it can be used to bring the study of the architectural and curatorial intent closer together, as spatial designs contribute not only to the transmission of knowledge and building of narrative, but also to communication of non-narrative meaning by offering the visitor embodied spatial and social experience.[58] It is possible because space is an intrinsic aspect of human activity, rather than just a background for it. According to the theory of space syntax, human activity has its own geometry – for instance, movement can be traced in linear patterns and interaction among people is essentially convex, because it requires a space that allows maximum visibility of all points from any position within that space. As a result, we tend to create spatial arrangements in ways that reflect this natural geometry of human activity.[59]

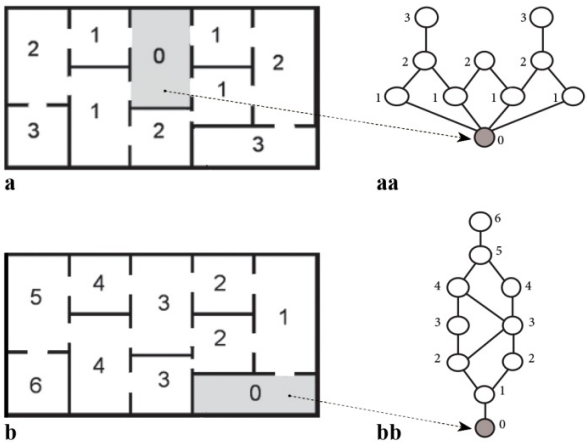
This research looks into museum buildings as articulated spatial structures, so it is important to note that the effect the space has on people is determined by the relations between all the spaces that make up a layout. For example, the way we move through the space is affected

[54] Hein 1998, p. 139.
[55] Falk and Dierking 2000, pp. 121-122.
[56] The method of space syntax was initially developed by the researchers at University College London in the late 1970s to early 1980s.
[57] Hillier and Tzortzi 2006, p. 282.
Bill Hillier is Professor of Architecture and Urban Morphology and Director of the Space Syntax Laboratory at University College London, where he pioneered the methods of space syntax. Kali Tzortzi is Assistant Professor at Department of Cultural Heritage Management and New Technologies at the University of Patras.
[58] *Ibidem*, p. 282.
[59] *Ibidem*.

by the sequences and choices offered by its relation to other spaces. Another aspect important to understanding layouts is that they are perceived differently when seen from different points within them. The syntactic analysis of a layout starts by measuring its degree of integration. The more integrated the spatial layout is, the fewer spaces you have to pass through to go to all the others. Another factor is intelligibility or understanding "the global structure from relations observed at the local scale".[60] In order to analyse a layout it is first represented as a pattern of convex spaces, lines, and/or fields of view (isovistas) covering the layout. Then calculations are made of the configurations between each spatial element and some or all others. Thus the key structural features of the layout are identified that can consequently be correlated with movement rates. (Fig.2) In museums, layout is usually used as a tool to communicate and support educational messages and create a pattern of visiting, so syntactic analysis is very useful in evaluating the efficiency of the existing layouts and in designing new ones.

Different spatial layouts have been proven to support different visiting styles and, consequently, learning modes, in visitors. The sequencing of spaces and provision of clear structure through hierarchy of intersecting axes can be used to support and express how and in what order exhibits should be experienced. By giving a tacit articulation to an intellectual experience this method works particularly well when exhibition presents a clear narrative, for instance, a chronological order of events. However, when exhibits are not organized in such an explicit narrative, an excessively sequenced layout does not support the conceptual structure of the exhibit and may seem constrictive and excessive. Such exhibitions could profit from transferring some intellectual control to the visitor and encouraging a more exploratory mode by offering more localised and interconnected sequences that allow visitors to create their own path. A particularly interesting example of how spatial qualities can influence visitor orientation, movement and, consequently, learning experience is offered by Sophia Psarra in her analysis of the Museum of Scotland.[61] At first sight the museum might seem overwhelming and constrictive due to its complex design and strong architectural presence, but syntactic analysis performed by Psarra shows quite the opposite results.[62]

[60] Psarra 2009, p. 149.
[61] Sophia Psarra is Associate Professor in the Taubman College of Architecture and Urban Planning, University of Michigan.
[62] Research carried out in 2000 together with Tadeusz Grajewski.

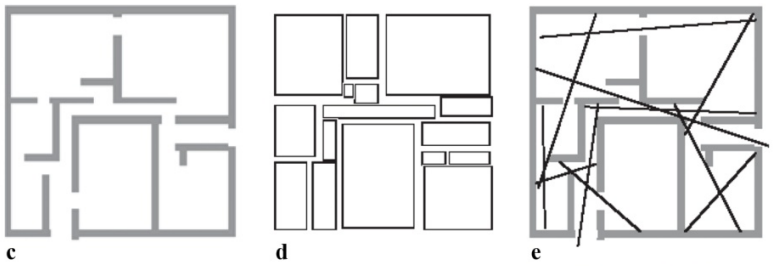


Spatial layouts are different when seen from different points within them.

(a) If we locate ourselves in the gray space marked 0, we have a choice of four spaces one space away – and so 1-deep and marked 1 – then three spaces 2-deep, and two spaces 3-deep.

(b) If we start in the corner gray space marked 0, we have one space 1 deep, two 2-, 3-, and 4-deep, and one each at 5- and 6-deep.

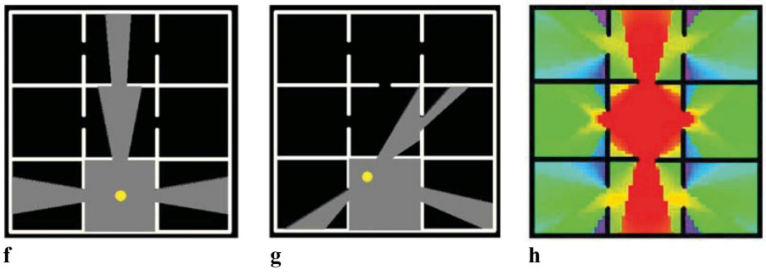
(aa) (bb) The total depth of the gray space from all other spaces is the measure of its degree of integration in the complex. This can be made visually clear by drawing the justified graph starting with the chosen space.



(c) Simple layout.

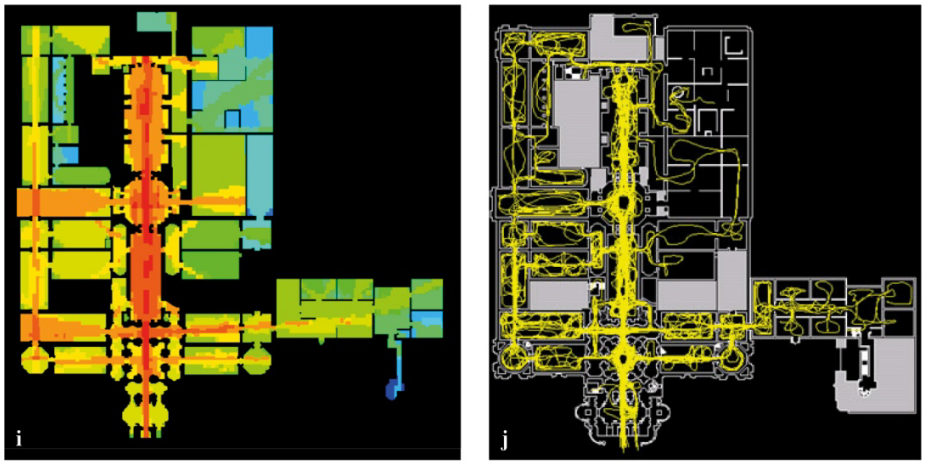
(d) The convex map represents all the spaces that make up the layout.

(e) The axial map shows possible isovists.



(f) (g) Visual fields (shown in grey) from a vantage point (shown in yellow).

(h) Isovist map (warm colours represent the most visually accessible locations, while cold colours stand for less accessible).



Tate Britain.

Correlating the pattern of visual integration with the movement pattern.

The pattern of visual integration in the spatial layout **(i)** clearly resembles the density of the traces of a hundred people entering the building and moving for ten minutes **(j)**.

Fig.2. The main principles of the space syntax method.

The museum presents the history of Scotland and is located in the historical heart of Edinburgh. The building consists of a set of galleries separated from each other by top-lit voids and shafts crossed by balconies and bridges.[63] The central volume contains the core galleries arranged chronologically throughout the five floors (including mezzanines) with the roof terrace at the top. The museum has a circulation loop located on the periphery of the layout that favours the viewing of the collection in a sequence predetermined by the curators. Smaller circulation circuits intersect with the peripheral one both horizontally and vertically. Combined with these alternative paths, axes structure the visitor's perception and define architectural intention. They stretch from side to side of the building and contribute to the legibility of the layout through increased intelligibility. They also connect different parts of the displays and are punctuated by various architectural elements (balconies, bridges and stairs, openings and slits, top-lit shafts and historical fragments).[64] Thus the building provides a diverse, well-structured and memorable architectural experience, which is interrelated to the display. This link is further explained in *Chapter Five* in relation to the use of architectural and museological narrative.

In many buildings orientation seems to become increasingly complex in upper levels, thus leaving them more segregated. The Museum of Scotland seems to counteract this threat by establishing visual connections across atria and voids connecting different floors. Abundant views between different levels prompt visitors to continue their journey on all the museum's floors. This way the difference between the visually unified core of the building (the atrium and the gallery space at the centre of the main galleries) and the rest of the spaces is reduced, with the entire layout becoming more integrated. However, as the visitors progress deeper and higher into the building, it becomes more difficult to reach the unifying distribution areas (staircases, lift, etc.). This is due to the very same shafts that allow such rich visual links. These voids are located between the core galleries and the peripheral spaces, thus preventing some axes from reaching the extremities of the layout and connecting with the staircases located there. The segregation is caused by the layered stratification that articulates different parts of the architectural layout and museological display. (Fig.3)

[63] Opened in 1998. Benson & Forsyth Architects.
[64] Psarra 2005, p. 82.

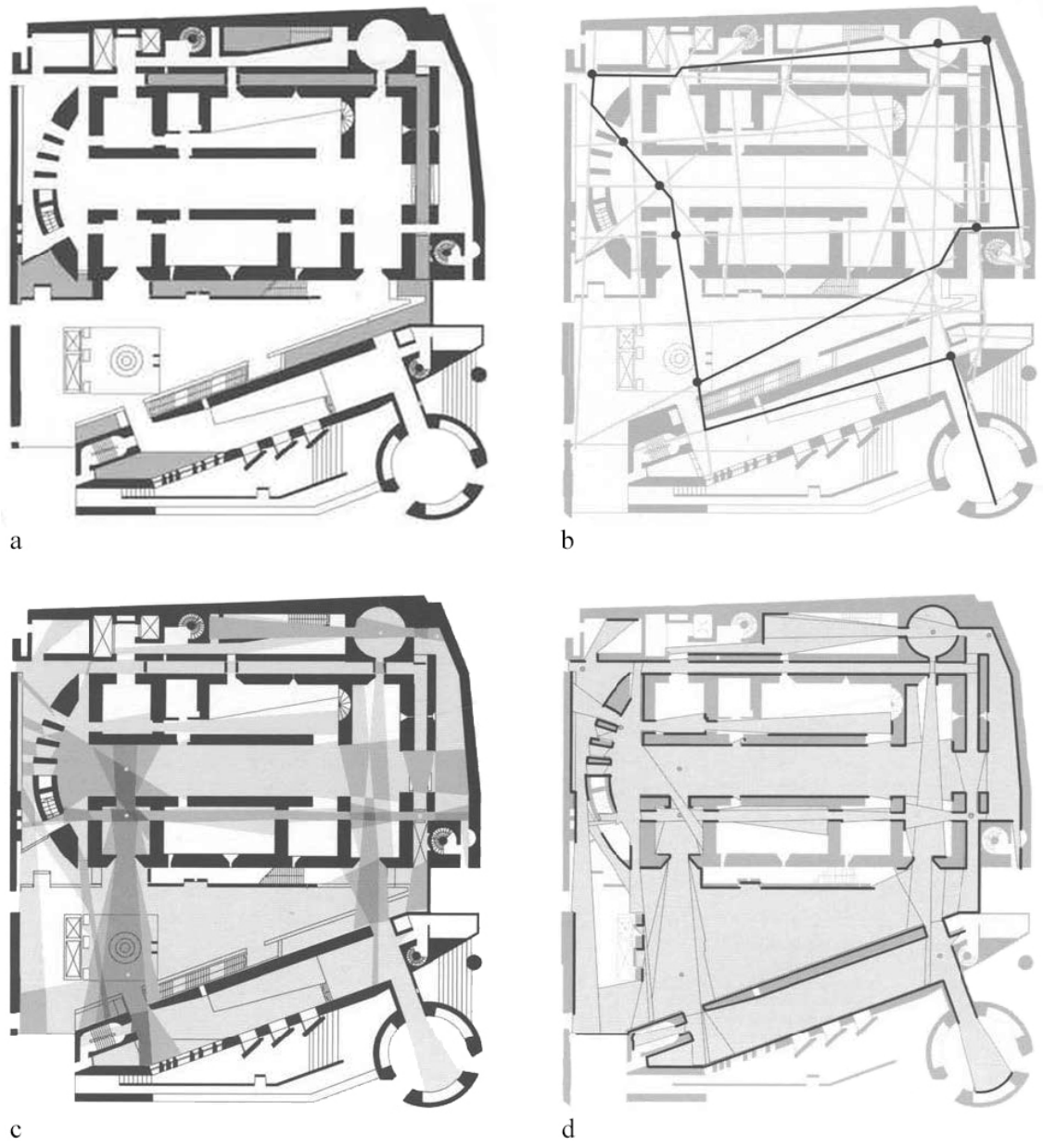


Fig.3. Syntactic analysis applied to the ground floor plans of the National Museum of Scotland.

(a) Shaded areas indicate voids.

(b) Joining the points located in the intersections of axes produces a continuous route that starts from the entrance and moves in a linear sequence along the periphery of the building.

(c) Composite isovist generated by overlaying all isovists drawn from the points in (b). This diagram shows that the entire layout can be learnt from nine points linearly linked along the

(d) Highlighting the surfaces seen in the composite isovist in (c) reproduces most of the physical elements of the layout.

Despite this segregation between the levels, the spatial arrangement of the building allows transition and discovery from one part of the layout to the other. Syntactic research reveals that the manner in which the layout allows visitors to gradually see the entire space results in "the three-dimensional sculpturing" or mental mapping of the building.[65] In this case the rather complex plan of the museum does not become an obstacle to understanding the logic behind the layout of the building and the display of the collection.[66] In the Museum of Scotland it rather expresses the identity of the collection, encouraging the visitors to actively interpret the exhibits and providing them with freedom to choose from a variety of paths available. The spatial structure of the building, however complex it may initially appear, allows the visitors to apprehend the building through movement and the gradual unfolding of space.

As can be seen space syntax relates to the idea that architecture is made through use as much as through construction. Studying the users' practices and needs is necessary in order to provide spaces suitable for learning, because, as Hein puts it: "By acknowledging the various physical modes visitors may employ, we tacitly acknowledge their different learning styles or types of intelligences."[67] Syntactical analysis shows that physical comfort prompted by clear spatial orientation and freedom of movement has a direct influence on the psychological and, consequently, cognitive dimension of museum experience. However, it is not only spatial qualities of the built environment that can contribute to the learning process. *Chapter Three* investigates how materiality of architecture affects our senses and emotions and what influence it has on visitors' physical and psychological comfort as well as the learning process.

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[65] *Ibidem*, p. 87.
[66] "Recording visual experience in the Museum of Scotland we drew visual fields along a peripheral route defined by the intersections of the longest axes, as these expose maximum information along two or more directions. All visual fields produced in this way link with the atrium. On the contrary, those drawn from the rest of the exhibition rooms are strictly limited to gallery spaces. Superimposing all visual fields to derive the sum of a person"s experience, we notice that the entire ground floor can be seen through a peripheral path, with the atrium as a constant point of orientation. It is also possible to perceive the layers surrounding the central gallery volume and grasp the volumetric articulation." *Ibidem*.
[67] Hein 1998, p. 166.

Chapter Three.
Bodily experiences and emotions

Materiality of architecture

This chapter focuses on the physical qualities of the built environment and the influence it has on learning in museums. Architects and designers manipulate various parameters of the built space, such as shape, mass, proportion and scale, and thus encourage or limit visitors' sensory engagement with it. In case of museum space, human scale is particularly important. Based on everyday experience, humans can easily estimate the size differences between familiar objects, and also tend to associate certain characteristics with size: bigger implies strength and weight, smaller fragility and preciousness. Furthermore, a general appreciation of the exceptional can be observed: people tend to be attracted by either very big or very small objects rather than medium sized.[68] Thus, creating juxtapositions allows for emphasis not only of the physical characteristics, but also the assumed qualities of artefacts and spaces. A good example is the Jewish Museum in Berlin, where the whole building is designed as a sequence of spatial experiences rather than a setting for encountering the objects.[69]

Colour, another widely used design element in museums, has an exceptionally strong emotional effect because of the deep biological roots of our colour vision.[70] Colours, together with textures and patterns, are often used to create "moods", stimulate emotional or even sensory responses.[71] Colours also have cultural meanings and are traditionally related to different types of displays that, in turn, are affiliated with different exhibits. The common practice of displaying

[68] Falk and Dierking 2000, p. 127.
[69] Opened in 2001, Studio Daniel Libeskind.
[70] Evolved as a mechanism to distinguish between safe and dangerous, edible and inedible, etc
[71] Falk and Dierking list several observations on such influence based on scientific research: "Reds, oranges, and yellows give a sensation of warmth, while blues, greens, and violets evoke coldness. So strong is this effect that people in a blue room will set the thermostat four degrees higher than those in a red room. "Warm" colours stimulate, "cool" colours relax, so that, for example, audiences hearing an identical lecture found the lecture boring in a blue hall and interesting in a red hall. Warm colours make things look closer, cool colours make objects look farther away. Dark colours make a space seem smaller, light colours open up a space. Noises sound louder in a white room than in a dark-coloured room. Dark colours even make objects feel heavier. [...] rooms with smooth textures seem "cold," while rough textures such as those created by shag rugs, plush fabrics, and uneven wall surfaces contribute to a sense of "warmth" in interior spaces." Falk and Dierking, 2000, pp. 125-6.

modern and contemporary art on a stark white background, whilst art from earlier periods and especially anthropological objects are given colourful backdrops, form the expectations that visitors have about their museum experience. Apart from widely accepted meanings rooted in culture, visitors also bring their own memories and associations that affect their perception of colours. In addition to this, the human brain continuously seeks order and thus is particularly good at noticing existing patterns or creating new ones. Thus, texture and pattern, together with colours, can be used to steer the eye, establish relationships between objects and manipulate visitor response to the exhibition. Physical aspects of the built environment can alter our perception and become important elements of conceptual communication. In the Quai Branly Museum in Paris colours are used to the fullest.[72] They not only delineate different parts of display and indicate various functions, such as exhibition space and circulations, but also create a mysterious and exciting atmosphere. The lush tones also carry cultural meaning. In this museum of anthropology artefacts from all over the world except Europe are displayed in a colourful setting that is pleasing aesthetically, but at the same time makes it difficult to concentrate on the objects. The display is also criticised for giving the impression of exoticism and suggesting entertainment – qualities that were expected of the anthropological objects in the colonial times.

In this chapter the emphasis is on the concept of materiality, which contains much more than the qualities described above. Materiality includes not only the object's form and material, but also "the techniques by which it may have been made or formed, any additions or presentational conventions (such as a frame) which may have been added to it, and all and any traces of the passage of time and, especially, physical human interaction".[73] Materiality originates from interaction with the physical form and the meaning we ascribe to it with our sensory experience.[74] In other words, objects influence the way we respond in that the sensory data we gather would not be what they are, were objects not as they are. The same can be said about the built environment, as a building is also a type of a physical object.

Falk and Dierking observe that the most persistent and recurring aspects of memories about museum experiences are often related to the physical context: "The ability to […] make

[72] Opened in 2006, Studio Jean Nouvel.
[73] Dudley 2010, p. 14.
[74] *Ibidem*, p. 15.

sense of an experience – in fact, the ability to learn – is strongly dependent upon individuals' ability to frame prior experiences within the context of their physical setting".[75] Because learning is context-specific these settings may facilitate or inhibit learned behaviours. For the same reason it is often difficult to transfer what has been learned from one environmental context to another.[76] According to Falk and Dierking, this assumption is best proven by the evidence that it is possible to naturalise learning to new contexts, when the learner can recognise elements from an environment where learning originally occurred.[77] If meaning is offered in decontextualised physical environments it impedes learning abilities and makes it very complicated to transfer skills and knowledge to other situations.[78] Furthermore, such buildings have a lower capacity to support learning, because they are rarely related to what is being learned. It is important to note, however, that different types of objects prompt different kinds of learning and might need different environments for that. Some of these artefacts, for instance, modernist art objects are made for "the white cube". Neutral gallery space *is* their context.

Whilst learning in a sterile and timeless environment makes it very difficult to relate the learning outcome to the everyday life, many museums still offer very limited possibilities of sensory interaction with the building and the artefacts. One of the obvious reasons is, of course, preservation of the objects. However, museum architecture which is less fragile, also often encourages a physical distance. "Cold", imperishable materials and polished or starkly white surfaces imply an absence of bodily experience and the primacy of a purely intellectual engagement. Yet activating our haptic, olfactory or auditory senses is something we would naturally do in a different environment in order to complement visual information. Advocates of the necessity of materiality in museums argue that objects, including buildings, can often "speak" to us through their physicality, even when there is no available information that would help us to contextualise them. Indeed, this approach ties in with the constructivist idea of the active and embodied role of the museum visitor that explores the environment in a physical, multisensory, aesthetic, emotional and immersive way.

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[75] Falk and Dierking 2000, p. 54.
[76] *Ibidem*, pp. 58-59.
[77] *Ibidem*, p. 59.
[78] *Ibidem*.

As discussed in *Chapter One*, discourse about architecture, or the way we represent it in verbal or visual mediums, can act as a liberating mechanism. It allows for the understanding of the built environment as a socio-cultural construct and extends its definition from the building itself to a set of practices needed for its realisation and utilisation. However, fixating on the discourses in order to understand the built environment can also significantly limit our experience of it. The initial response to a building could prove to be emotional, sensory and even visceral. By contrast, prior knowledge can act to dilute any sense of magic and mystery. An embodied experience can make a significant impact on how we perceive the discourse by making the visitor emotionally more receptive to the information.[79] Emphatic prepossession and the expectation of mystery make the learner more prepared for and receptive to the learning that is going to happen in the museum. Hence, creative and materialist considerations of embodied and emotional engagements with buildings can add to the creation of a learning-friendly environment.

Phenomenology in architecture and embodied learning

There is a widely held view that active learning, including various bodily experiences, is only appropriate in young age and that adults should learn mainly through abstract analytical and symbolic thinking. However, Hooper-Greenhill contests that embodied and immersive experiences are equally important to all age groups and should be considered as one of many learning methods. While research on adult learning through physical activity in museums is rather scarce, similar studies with children show that "immersion in unusual bodily activities in unfamiliar spaces required students to adopt a receptive and open attention in order to navigate and make sense of the events as they occurred".[80] The embodied experience of space can not only enhance the learners' capability to take in information, but also greatly broaden the spectre of learning outcomes and contribute to the formation of identity. Fully understanding learning as an embodied practice requires the analysis of sensory experience that is not restricted by the primacy of vision which is highly evident in museums today.

[79] Dudley 2012, p. 5.
[80] Hooper-Greenhill 2007, p. 173.

Juhani Pallasmaa criticises the dominance of vision that results in predictability of modernist and contemporary architecture. According to him, it leads to tiresome uniformity of the environment and "impoverishment of senses".[81] Pallasmaa particularly stresses the importance of touch, which is integrated into all other senses:

> Even visual perceptions are united and integrated into the haptic continuity of the self; my body remembers who I am and where I am placed in the world. Touch is the unconsciousness of vision, and this hidden tactile experience determines the sensuous quality of the perceived object, and mediates messages of invitation or rejection, courtesy or hostility.[82]

Haptic architecture can replace distancing and instantaneous visual imagery with enhanced materiality, nearness and intimacy. Materials are particularly important here because of their intrinsic language rooted in their natural origins.[83] Matter evokes unconscious images and emotions that are deeper and more profound than images of form.[84]

Pallasmaa's concept of "weak architecture" connects all these qualities. The "weakening" of the architectural image happens through ruination and weathering. Materiality manifests itself through inevitable change, because all phases – even ultimate disintegration – are natural to building materials and, actually, any other thing. Pallasmaa contends that such architecture becomes more relatable via the senses, because it feels more real and inclusive. "Strong architecture", by contrast, is seen as hermetic, isolating and simplified in order to create a unified and clear image.[85] The Diocesan Museum in Cologne, or "The Kolumba", could be used to exemplify certain qualities of "weak" space.[86] The building combines the ruins of the former St. Columba church, which was destroyed in World War II, with its own rich material presence. The design does not deny weathering and ruination by preserving the remains of the church as a museum object. It recognises this natural destruction of the built environment by incorporating

[81] Pallasmaa 1999.
[82] *Ibidem*.
[83] "Stone speaks of its distant geological origins, its durability and inherent symbolism of permanence; brick makes one think of earth and fire, gravity and the ageless traditions of construction." *Ibidem*.
[84] *Ibidem*.
[85] *Ibidem*.
[86] Opened in 2007, Atelier Peter Zumthor & Partner.

the ruins into the architectural structure. Thus the visitor is constantly aware of the passage of time and how it affects the materiality of the building.

Norberg-Schulz contributes to the discussion by introducing the term "existential space", in order to explain how architecture could be understood in concrete "architectural" terms, not as an abstraction. "Existential space" is not a logico-mathematical term, but consists of the basic relationships between man and his environment. Architectural phenomenology stresses the innate human need of symbols – in our case, built environment – which represent life-situations as meaningful. Norberg-Schulz hence contends that "the existential purpose of building (architecture) is [...] to uncover the meanings potentially present in the given environment."[87] He uses the term "to concretise", which means to make the general or abstract notions "visible" as a concrete, local situation, thus relating to the phenomena of our everyday life. "Concretisation" depends on how things are made – in other words it depends on the form and technology of built forms as well as the characteristics of nature. Thus, architecture is first of all determined by its materiality as expressed through the kind of construction used (open and transparent, massive and enclosed, etc.) and making as such (binding, joining, erecting etc.). In this way "concretisation" also presumes a language of symbolic forms (style).

Another feature is "character", which designates a general comprehensive atmosphere and the concrete form and substance of the space-defining elements. Norberg-Schulz argues that different actions demand places with a different "character". Materials and their colours, textures and patterns contribute to "characterisation". According to Norberg-Schulz, a lack of "character" implies a scarcity of stimuli, which in turn "may cause passivity and reduced intellectual capacity, and we may also infer that human identity in general depends on growing up in a 'characteristic' environment. The environmental crisis therefore implies a human crisis."[88] In fact, he sees "sterile" modernist architecture as offering very few of such stimuli. Furthermore, he argues that the more abstract architecture becomes, and the less its formal properties appear structurally similar to other aspects of reality (and ultimately to natural structures), the more

[87] Norberg-Schulz 1991, p. 18.
[88] *Ibidem*, p. 190.

isolating its effect upon the users. The ultimate and very unfortunate result of such process would be to confine ourselves within a purely artificial world and thus lose contact with reality.[89]

The Museum Beelden aan Zee in Scheveningen, The Hague, can be analysed as an example of the "concretisation" of the environment.[90] Even though the design of the building keeps certain modernist characteristics, like its rigid spatial grid and the impression of timelessness it exudes, it still manages to reflect the "character" of the location in a very sophisticated and stimulating way. The museum is completely integrated in a sand dune. The main part of the museum is located underground with an ample amount of daylight pouring in through glazed walls and ceilings. The concrete walls remind of the war-time bunkers that mark the Dutch coast, but at the same time exude calming stability. The museum building does not overshadow the nineteenth century pavilion that is built on the dune. Sand and natural seaside flora form the dune "cover" on top of the hidden museum spaces. (Fig.4) The colour of concrete, type of wood and stone as well as stainless steel were all carefully matched to the existing colour scheme and material aspects of the site. The northern light is masterfully employed by the architect in order to support the main function of the building – exhibiting contemporary sculpture. The building materials are resistant to weathering, but are not designed to eliminate its consequences.

However, the surrounding verticality of the cityscape is quite contradictory to the reassuring stillness and horizontality of the Beelden aan Zee. This part of Scheveningen is crowded with tower blocks and marked by the imposing presence of the pier, the Grand Hotel Kurhaus and the promenade. The lack of architectural presence is one of the factors limiting the museum's ability to extend its influence and practises into the surrounding environment, as it is simply difficult to spot. The fact that the building succeeds in "realising" this particular site, but struggles to integrate into the surrounding urban environment shows that working on phenomenological terms is only one of the factors in that determine the final outcome. In times when museums are becoming more and more aware about their role in the society, the example of Beelden aan Zee also raises the question where museum architecture begins and ends. Is it delimited by the building site or should it somehow, maybe only on the symbolical level, extend

[89] *Ibidem*, p. 169.
[90] Opened in 1994. Studio Wim Quist.

further? This discussion is related to the social responsibilities of museums as well as social and cultural nature of knowledge which is further discussed in *Chapter Four*.

Fig.4. A panoramic view of the Museum Beelden aan Zee and the building from the promenade located between the building and the beach.

Learning and emotions

Emotional responses to environment can greatly contribute to learning success. Hooper-Greenhill points out that the very nature of emotions is deeply personal and thus relating to something or someone emotionally is a way of claiming that person or object as our own.[91] Involvement that excludes emotions is unengaged and distant. Knowledge gained through emotions and bodily engagement is often tacit. Such learning happens in an unconscious and non-verbal state and remains latent. Acknowledging the active role of such experiences in the general framework of learning makes the visitor more aware of various levels of meaning making. Furthermore, learning is a process grounded in desire – if the desire to learn is absent, the learning will not happen. Hooper-Greenhill contends that

> when skills are needed for immediate use to make something, when knowledge is necessary to make sense of what is in front of your eyes, and when emotions result in empathy with others, the context demands that learning takes place. This means that

[91] Hooper-Greenhill 2007, p. 176.

> cognition and rationality must be understood as contextual rather than as single independent elements.[92]

Furthermore, employing imagination and emotions can make the learner feel personally engaged. Such experiences demand complete immersion and trust and as such the ideas presented may have a greater impact on personal identity and its potential for development.[93]

Neuroscientists have shed light on the reason why spatial learning is associated with emotional response. Memories have to pass through the hippocampus, located in the limbic area of the brain, which is strongly associated with human emotional processing. During this process a memory becomes "permanent" and acquires both an emotional and a physical context stamp. In addition to this, there is strong evidence that learning is at its most efficient under conditions of positive emotional reaction to the setting. Falk and Dierking conclude that "given the connection between learning, the hippocampus, spatial mapping, and emotion, one would suspect that physical context, emotion, and learning are highly interrelated."[94] Falk's extensive studies on out-of-school learning observe very strong correlations between positive emotional reaction to the setting, high levels of involvement with the physical context and increased learning.[95] As museums in particular have consistently shown a capacity to generate positive emotions and highly interactive physical environments, Falk and Dierking argue that they must also facilitate learning.[96] As can be seen, the personal context, in this case represented by emotional responses, and the physical context are interrelated and essential to the process of learning.

In case of European and North American museums, one of the most explored topics that have a strong emotional impact is the Holocaust. Anne Frank House in Amsterdam and the Jewish Museum Berlin are two very different architectural variations on the same theme. Yet they both have a very strong material presence. The very title of the institution retelling the story of Anne Frank hints at the importance of the authenticity and intimacy of the experience.[97] It is

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[92] *Ibidem*, pp. 176-177.
[93] *Ibidem*, p. 180.
[94] Falk and Dierking 2000, p. 62.
[95] Falk 1976.
[96] Falk and Dierking 1992; Falk 1999.
[97] Opened in 1960.

not “a museum”; it is “a house”. The materiality is also authentic: the visitors can walk on the same wooden floors, climb the same stairs, and touch the same wallpapers as the main protagonist of this museum did. (Fig.5) The bodily experience of the visitors is supposed to duplicate the everyday life of Anne Frank and her family. As the public identifies with the story in a more natural, personal and emphatic way, the emotional response to the tragic fate of the family is strengthened.

The two displays described above allow the materiality of the built environment tell a personalised and intimate stories. The Jewish Museum in Berlin is designed more as a memorial that represents a grand narrative and rather abstract ideas of continuity, exile and the Holocaust.[98] The design of the building deliberately disorientates the visitor, thus representing the chaotic and absurd nature of the Holocaust. In contrast to the ideas expressed in *Chapter Two* the physicality is actually working to create physical and psychological discomfort as a part of museum experience. (Fig.5) It is, however, much more difficult to relate to *the idea* of the Holocaust than to a personal loss of a beloved, which is represented in the Anne Frank House. However tragic the main topic is, due to its monumental presence and strong emotional impact the museum is criticised for “audience interaction with the structure, as a quasi-touristic experience” instead of providing an emphatic and contemplative experience through engagement with the subject material.[99] This shows the power the physicality of architecture has – if it is not coordinated with the museological narrative during the design process, it might weaken or even contradict the curatorial intent. As the “post-museum” acknowledges its ethical responsibility, the messages that are communicated on such sensitive topics and the way they are communicated should not work against each other.

This chapter shows what a strong impact the materiality of a building can have on the visitors’ emotional response. The physical qualities of architecture can also contribute to the formation of the museological narrative on the conceptual level. The phenomenological perspective also reveals the potential materiality has to reveal the “character” of a particular site. This quality can consequently contribute to the formation of the identity of the institution and prompt – or as can be seen from the example of the Museum Beelden aan Zee – impede its

[98] Opened in 2001. Studio Daniel Libeskind.
[99] Rectanus 2006, p. 390.

integration in the wider environment, thus establishing relationships with communities. *Chapter Four* concentrates on exactly that – how museum architecture can contribute in creating socially and culturally inclusive space.

Fig.5. Anne Frank House in Amsterdam and Jewish Museum in Berlin.

Chapter Four.
Social space

Museum learning, social interaction and space syntax

Providing physical and psychological comfort and the possibility to engage with the materiality of the building are some of the ways architecture can contribute to the creation of a museum environment suitable for learning. However, overreliance on the physical aspects of space might prove restrictive. Furthermore, following Henri Lefebvre's argument in *The Production of Space*, Jeremy Till explains that "space is 'produced' through a complex set of overlapping societal agencies: the representational, the economic, the phenomenological, the conceptual, the spatial practice of the individual, the collective practices of the political, and so on".[100] Hence, the building cannot be conceived as if it is a static physical object and understood as a production of a single person – the architect. Till also criticises the prevalence of geometry and measure in design process, which is characteristic to the modernist architecture and documented in such manuals as Ernst Neufert's *Architect's Data*.[101] He argues that this kind of approach leads to normalising and ordering the space by neglecting its inherent social dynamics and treating the user as abstraction.[102] The building should be designed not in a normalised and abstracted way, but by creating an architectural framework that tolerates various modes of appropriation and gives the user more freedom of choice.

Another aspect of space designed in recognition of museum's social dynamics is that it allows learning to happen not only individually, but also through social encounter. By interacting with a display, each visitor reaches different outcomes. By sharing these with other group members, the learners expand each other's learning experience. A frequent social group seen in the museum is the family. Falk and Dierking observe that on one hand, during a museum visit, experience is personalised for each family member, even though they all engage with the same

[100] Till, 2009, p. 126.
[101] *Architects' Data* is a reference book for spatial requirements in building design and site planning. First published in 1936.
[102] Till, 2009, p. 122.

display.[103] On the other hand, there is a group effect: individual learning experiences are strongly influenced by the input from other family members. Through a museum visit a family can enrich its culture of shared values and experiences and expand its knowledge that is then "stored" for later sharing among the group members.[104] Thus, museum experience is integrated into social interaction that is not limited to the time spent in the museum.

The syntactical analysis described in *Chapter Two* can be used to analyse the visiting culture and social interaction of the visitors. This can be done by first measuring the configuration of spaces as described in *Chapter Two* and, consequently, identifying the key structural features of the layout. These are then correlated either with the ways in which spaces are categorised (by function, style, etc.) and/or with movement rates within and between them. Thus the method of space syntax can reveal "how culture manifests itself in the layout of space by forming a spatial pattern in which activities are integrated and segregated to different degrees".[105] In the case of museums, visiting culture, or the behaviour of the visitors in response to museum environment, is particularly important in order to understand the impact architecture has on visitor experience. Social interaction is one of the key factors that define visiting culture. However, space not only reflects social patterns, but can also produce them by creating a pattern of co-presence in a layout. This is done through organisation of spaces in relation to each other and thus determining the pace and direction of the visitors' movement.[106]

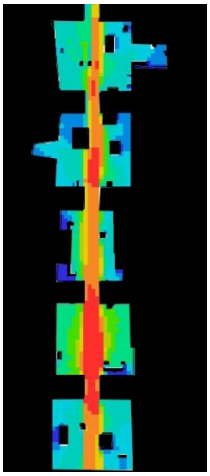
Hsu Huang observes that organised walking and the congregation of visitors are the two key themes embedded in the spatial layout of the modern museum.[107] If a layout is shaped as a single sequence, then during their visit people will circulate in the same order – more or less constantly behind some people and in front of others – with little variation in the pattern of co-presence. A layout with more choices for circulation manifests an effect called "churning": visitors will enter the space together, then probably part ways and re-encounter each other after some time. While these encounters will probably feel random to visitors, spatial syntax shows that this is a predictable effect. A re-encounter can be a conscious or unconscious recognition

[103] Falk and Dierking 1990, p. 94.
[104] Borun, Chambers and Cleghorn 1996, pp. 135-136.
[105] Hillier and Tzortzi 2006, p. 285.
[106] *Ibidem*, p. 286.
[107] Huang 2001.

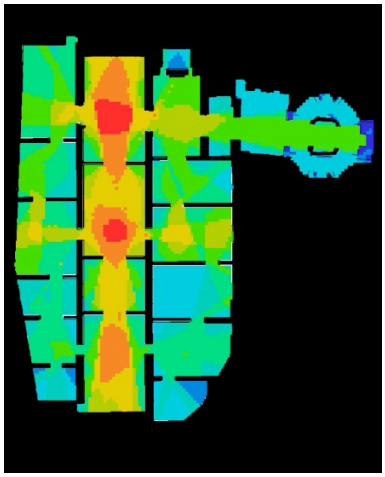
experience, because people tend to unconsciously survey those present in the same space. Churning gives the sense of dynamic and informal encounter even in buildings that might be considered rigidly structured in terms of layout. Another design feature promoting social experience is the central aisle which can act as an integrating space and generates a collective interaction between people and objects.[108] In less integrated spatial layouts, where churning occurs less frequently, the physical encounter between visitors can be replaced by the virtual encounter through visibility – an example of which can be observed in the previously analysed Museum of Scotland.

Various types of co-presence were extensively analysed in the study of the Tate Britain gallery by the Space Syntax Laboratory of University College London in 1996.[109] The research team was asked to develop and evaluate design proposals for the latest expansion and remodelling of the building in order to find out how these extensions might affect the patterns of visiting and the spatial culture of the gallery. Recording the routes of one hundred visitors revealed strong preference for the movement through room-like spaces along the main central axis and secondary axes perpendicular to it. On one hand, visiting pattern showed that the museum layout was read the way it was intended – as rooms linked visually through entrances in enfilade. On the other hand, it also had a strong integration core, or central unifying space, that linked "the main entrance through the main axis to the deeper parts of the building, and structured access both to the galleries from the entrance, and between galleries in different parts of the building".[110] This interconnectivity of the spaces actually made the layout intelligible in its entirety and organised movement within the gallery as well as in and out of it. (Fig.2) This kind of spatial structure is called "shallow core" and has been proved to induce the sense of dynamism and informal encounter in various types of buildings.[111] (Fig.6) It also creates the effect of churning, mentioned earlier. Thus, a formalised neo-classical layout allows a highly random pattern of visiting with a sense of dense social encounter, which resulted in the informal and relaxed atmosphere.[112]

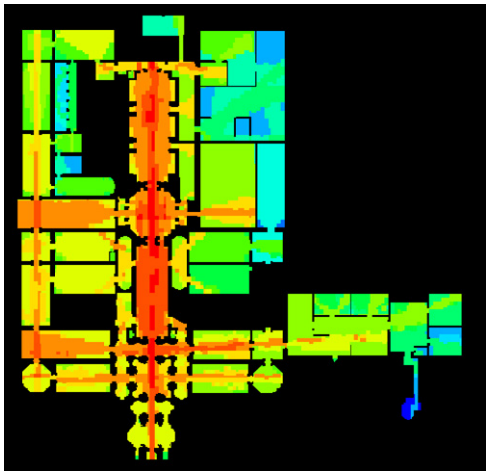
[108] Hillier and Tzortzi 2006, p. 289.
[109] Hillier et al. 1996.
[110] Hillier and Tzortzi 2006, p. 291.
[111] *Ibidem*, p. 292.
[112] Visitors' research indicated this as one of the main positive aspects of the museum.



(a) Castelvecchio Museum, Verona.



(b) Sainsbury Wing, The National Gallery, London.



(c) Tate Britain, London.

Fig.6. Examples of shallow core: warm colours represent areas of high visual integration; cold colours show areas that are less visually integrated. (Not to scale.)

Cultural nature of learning and shaping of identities

Hooper-Greenhill sees social and cultural aspects of museum learning as interdependent. She recognises the fact that the way we define the term "culture" depends on the discursive context we use it in. In order to theorise learning the author starts with one of the four definitions offered by Raymond Williams, who conceptualises culture as "the signifying system through which necessarily (although among other means) a social order is communicated, reproduced and experienced".[113] Thus, culture is understood as a set of material practices, which in their performance construct meanings, values and subjectivities. Culture is also a site where these dominant values are transmitted and accepted or challenged and changed. These practices depend on individual's cultural background, experience and knowledge. Culture is understood as constitutive of society, because "cultural symbols have the power to shape cultural identities at

[113] Hooper-Greenhill 2000, p. 11.

both individual and social levels".[114] From this perspective, culture is not a semi-autonomous zone in existing in a realm above the practical world of everyday reality that reflects society through art. Hence, the ideas of "high" and "low" culture or "cultured" and "uncultured" individuals are no longer applicable. According to Hooper-Greenhill, culture generates society through the images of social possibilities and stories of social achievement. Museums act as one of the spaces where such knowledge is constructed through the process of learning.[115]

In museum settings cultural information is acquired not only through the interaction with the display, it is also shared through social interaction. Such socially facilitated learning has been observed as particularly common in free-choice museum learning. It helps people to make personal and cultural meaning from the presented interpretation and to relate it to their own experience and beliefs.[116] This often happens within "communities of learners" or "communities of practice."[117] The fact that knowledge is socio-culturally constructed does not mean that all members of the society share the same knowledge. Nevertheless, there are innumerable communities of learners that do share a certain body of knowledge, usually gained through prolonged periods of learning not guided by the evaluation of one's achievements. In this case, membership can be either conscious, which is often the case with professional groups, or unconscious, when knowledge is gained for other reasons than becoming a member of a particular group. In both situations, apprenticeship – that is, learning from knowledgeable members – is one of the main ways of entering the community.[118] Finally, the socio-cultural context influences the individual and the community. On one hand, it affects social interactions among people, consequently influencing perception and the processing of information. On the other hand, the socio-cultural context influences the meaning that is made of these perceptions on the individual and community levels.[119]

Another important socio-cultural phenomenon in which museums are implicated is the shaping of identities. Stuart Hall contends that the ability to construct meaning is rooted in the

[114] *Ibidem*, p. 13.
[115] In this discussion one must be aware of the cultural bias. The way we formulate questions, interpret information and reach conclusions are culturally pre-determined. So, even the research on learning or any attempts to create environments adapted to it are also influenced by the culture shared by the researchers and designers.
[116] Falk and Dierking 2000, p. 49.
[117] *Ibidem*, Chapter 6.
[118] Matusov and Rogoff 1995, p. 100.
[119] Hooper-Greenhill 2000, p. 13.

very core of identity, because it provides us with sense of who we are and where we belong.[120] Furthermore, Hooper-Greenhill argues that identity is "about belonging as much as about being able to feel at home and to recognise that home as your place. Being able to make connections to local knowledge may be very important for the reinforcement of individual identity".[121] This brings us back to the idea of architecture that reflects or interprets the local identity on various levels instead of offering universally suitable solutions. Identity of a site can be understood as its materiality – the natural landscape, the surrounding built environment and the climatic conditions. But it can be extended to national or ethnical identity and the identity of an institution. Christian Norberg-Schulz approaches the same issue from the phenomenological perspective by stating that "man has to be able to *orientate* himself; he has to know *where* he is. But he also has to *identify* himself with the environment."[122] Such a state can be facilitated through the built environment by forming a hierarchy of environmental levels. For instance, if settlements are organically related to their external natural or cultural environment, they serve as foci where the environmental character is condensed and "explained". Internally, they are organised through "subplaces", such as squares, streets and districts, which in turn contain and are defined by buildings.

According to this theory, public buildings, such as museums, represent a certain form of agreement. They concretise the shared understanding which makes communal life possible and meaningful. On similar grounds Stephen Greenberg criticises Glasgow Riverside Museum of Transport as being disconnected from its environment and the community whose history it represents.[123] (Fig.7) Govan, once one of the great shipbuilding communities of Glasgow, is located directly on the opposite bank of River Clyde from the museum. Physical remains of its industrial past, such as the shipyard and the fine stone office building, are still present. According to Greenberg, choosing an "iconic" building was clearly a political attempt at the regeneration of the area. Unfortunately, the building remains disconnected from the community on the other side of the river. There is no physical or conceptual bridge to unite the two. The site

[120] Hall 1997, p. 3.
[121] Hooper-Greenhill 2007, p. 179.
[122] Norberg-Schulz 1991, pp. 19-20.
[123] Greenberg 2012,p. 100.
Stephen Greenberg is the founding Director of Metaphor, a company specializing in museum design and masterplanning.The museum opened in 2011. Zaha Hadid Architects.

of the new building was also stripped of any remnants of its industrial past, such as original rails and cobbles. Greenberg, however, imagines an alternative solution, where instead of a design that is hardly linked to its context and is concentrated on the building, the project would be extended to a community level. According to this idealist vision, the museum could be located in a reconstituted or renovated industrial shed authentic to the site, a physical bridge would link it to Govan and certain sites and buildings having a strong symbolical meaning to the community would be restored:

> The shed [...] expresses the idea of the place whereas the Hadid museum packages up the past, removes it from its scale, smell and grittiness, rinses it of atmosphere and the detritus of the places of making. [...] The new iconic building is therefore left in sole charge of retelling the story, untroubled by the presence of authentic history and memory in the landscape around it, and whatever remains of that heroic past is suspended within the aspic of the museum and the conventions of museum display.[124]

Quite the opposite can be said about the District Six Museum in Cape Town.[125] (Fig.8) It represents a way more delimited group of people and is relatively small scale compared to the Glasgow's project. The museum was established in 1994 as a proxy house for about 60,000 former residents of District Six who were forcibly removed from the area and re-housed elsewhere by the apartheid government in the 1960s and 1970s. It acts as a depository for memories of life in District Six and a community centre, because the restitution of the largely vacant land and the redevelopment of the area are still ongoing processes. The museum is installed in a former warehouse that was later converted to a Methodist church. This results in lack of a strong architectural ordering and reflects the chaotic urban nature of the site, which greatly contributed to the legitimisation of its clearance as a "slum" during the second half of the twentieth century. Scarce architectural directives combined with the absence of a clear spatial scripting of the display, offers a general experience of mixed and loose personal narratives "interrupting thematic boundaries with its idiosyncrasies while parts are frequently revised as new items are found or made".[126] It also recognises the history of the site as multivocal and

[124] *Ibidem*, p. 100.
[125] Established in 1994.
[126] Coetzer, 2012, p. 66.

individualised, which acts as a counterpoint to the dehumanising strategies of apartheid.[127] The museum architecture allow for the multiplicity of narrative spaces and social interaction within them due to its unrestrictive architectural framework that actually originates from the site itself and the practices authentic to it.

Fig.7. Riverside Museum, Glasgow.

Fig.8. District Six Museum, Cape Town.

The Riverside Museum and District Six are two very different examples in terms of their scale, cultural context as well as the type of history represented and artefacts displayed. Nevertheless, both of these institutions have to take social responsibility towards the communities, whose history they represent. The solutions are almost at the opposite sides of the spectrum – Glasgow opted for a relatively isolated iconic building that would hopefully attract investment and regeneration, while at District Six the museum becomes a sort of a community

[127] *Ibidem*.

centre. This brings us to the issues related to the design process and the involvement of the future users. Nic Coetzer argues that it is important to take into consideration the narrative of the design process itself.[128] The programme or brief are commonly used to rationalise and legitimise the potential of a project. "The use of programme-as-concept ultimately becomes the museum's real 'narrative space' through which the design is developed in order to predetermine and predefine all variable aspects of a museum's 'narrative space' into a singularity or a strong formal/spatial 'concept'."[129] However, there is a risk of the meta-narrative of the museum overwriting the multiple minor narratives of the continuingly under-represented, whether that is an individual, a community, a nation or any other group of people. By suppressing this variety of stories might also lead to an isolated individual experience lacking empathetic relationship with the characters of the narrative. This brings us to the final chapter of this thesis that investigates various narratives created, transmitted and contested by museum architecture.

[128] Nic Coetzer is a Senior Lecturer at the University of Cape Town where he teaches design and the history and theory of architecture.
[129] Coetzer 2012, p. 64.

Chapter Five.
Architectural and museological narratives

The Importance of narrative

Narrative is one of the primary mental structures used to convey educational messages in museums. Hein explains that "acknowledging that the museum is not the repository of the 'truth,' but that its contents are arranged by fallible and culturally influenced humans, leads to the suggestion that the messages emanating from museums are themselves stories, narratives to be read and understood by visitors".[130] As discussed in *Chapter Four*, learning is a socio-cultural process. Falk and Dierking argue that narrative is a very effective means not only to transmit factual knowledge, but also to share socio-cultural information.[131] Narratives or scripts are the key means by which to structure knowledge and, consequently, to organise, interpret and predict the world. Paul Ricœur stresses the fact that perceiving time as a linear progression of "nows" is just one part of experience – we also employ narrative in order to create a coherent story of our lives.[132] Thus, we use narrative not only to predict changes in our environment, but also to construct our own identity.

Falk and Dierking also relate narrative structure to the process of building long-term memory. They refer to cognitive research which has proven that

> universally, people can mentally organise information effectively if it is recounted to them in a story. However, these stories are a mechanism for transmitting not only the individual's cognitive heritage but also cultural/historical heritage [...] people tell

[130] Hein 1998, p.151.
[131] Falk and Dierking argue that this assumption is best supported by the research carried out in the 1980s, which explain that pretend play, in both forms – as early fantasy play and later group games with defined rules and roles – actually supports cognitive and social development in children. Three year-old toddlers can already remember familiar daily activities in the form of a simple story that describes an event sequence as well as what and when occurs in a given situation. These are used to build long-term memory and help to predict what will happen in similar situations. The scripts embedded in a child's memory become more complex with age and the repetition of a particular sort of experience. Falk and Dierking 2000, p. 48.
[132] Ricœur 1979.

> themselves stories about their experiences and that these stories help to provide meaning and significance to events.[133]

Falk and Dierking offer as examples social acts of play and performance, such as music and drama, and various kinds of narrative forms such as poetry or myths. A variety of story forms are used to transmit cultural information that includes patterns of social relations and codes of behaviour as well as assumptions, implications and emotions related these customary forms of social interaction. Furthermore, these narratives often employ cultural artefacts and, in some cases, stories themselves can become cultural artefacts. Thus, museum objects can play an important role in constructing, supporting and transmitting narrative. As will be demonstrated in this chapter, narrative and performativity are important aspects of exhibition design, both closely related to methods of constructivist learning.

Tricia Austin traces two prevailing schools of thought and explains their contrasting approaches to the nature of narrative.[134] The ontogenetic perspective propose that human "brains and bodies are hard-wired to continually construct narratives" and sees narrative as a part of our ability to use language.[135] The phylogenetic perspective suggests that narrative is a result of cultural evolution. "People acquire narrative skills that produce and articulate a sense of self or, 'I in the world' and then see their actions as a narrative of identity." [136] Austin argues that it is possible to combine the two perspectives by recognising that narrative may be hard-wired into the brain but can also be prompted and developed through practice. These processes are spatial in their nature, as any experiences used by humans to form identity and understanding of the world inevitably happen in some sort of space. Austin gives this as her main argument for the creation of narratives with spaces destined for transmission of knowledge. Such environments use both, intellectual and the corporeal. They transmit a message through a variety of sensory means, but they also use written or spoken word as well as images or film. While physical aspects of the environment are perceived through our body and then trigger thoughts or emotions, textual information and imagery can prompt sensory memories or physical interaction.

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[133] Falk and Dierking 2000, p. 48.
[134] Tricia Austin is a Design Researcher and the Course Leader of MA Creative Practice for Narrative Environments at Central Saint Martins College of Art & Design, University of the Arts, London.
[135] Austin 2012, pp. 107-108.
[136] *Ibidem*.

Seen from the constructivist perspective, another important aspect of narrative is its constructive nature, as it is born from "the interplay between self, others and the world" and consequently differs depending on how or where it is told and by whom.[137] Acknowledging the constructive nature of the discourse and its importance in the meaning-making process draws attention to the issues of co-authorship and visitor-generated content as well as related issues of ethics and power-play in museum exhibitions. It also highlights the stimuli that ought to be present in the environment to make it appealing to the learner. The story, communicated through intellectual and sensory means, should construct tension and create a sense of gradual unfolding, while at the same time offering elements of uncertainty that incite a desire for resolution. This balance between the familiar and the unknown is what makes the visitors motivated and confident in their ability to resolve a mystery. If a narrative is effectively structured, it "will prompt embodied perception, physical action and intellectual change or transformation; this may be described as learning or discovery in an exhibition context but could also be described as a rewriting of your sense of self".[138]

Basing her ideas on narrative theory, Austin argues that it is possible to define the scope of "narrativity", or "storyness of a narrative", of a particular architectural space or object.[139] There are two main variables in Austin's model: the level of "narrativity" and the type of communication which varies from denotative – transmitting only literal meaning – to connotative, which conveys associative meanings. (Fig.9) However, the level of narrative and type of communication is perceived in a different way by each individual depending on the amount of information one has about the object or space. Better knowledge about the subject topic might make more literal information available and thus render it less evocative, but it can also work the opposite way and encourage a more sophisticated interpretation of the connotative meaning.[140] Austin's method is purely theoretical, but it shows that narrative is not just an abstract notion – it can actually be "built into" the space of a museum in order to communicate messages.

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[137] *Ibidem*.
[138] *Ibidem*, p. 109.
[139] "Narrative theory [means] a discussion and application of concepts from literary theory, narratology, performance, and film theory which employs terms such as narrativity, dramatic conflict, causation, plot, agency, event, entity, frame, diegesis, focalization, sequence, rhythm, pace and so on." *Ibidem*, p. 108.
[140] *Ibidem*, p. 113.

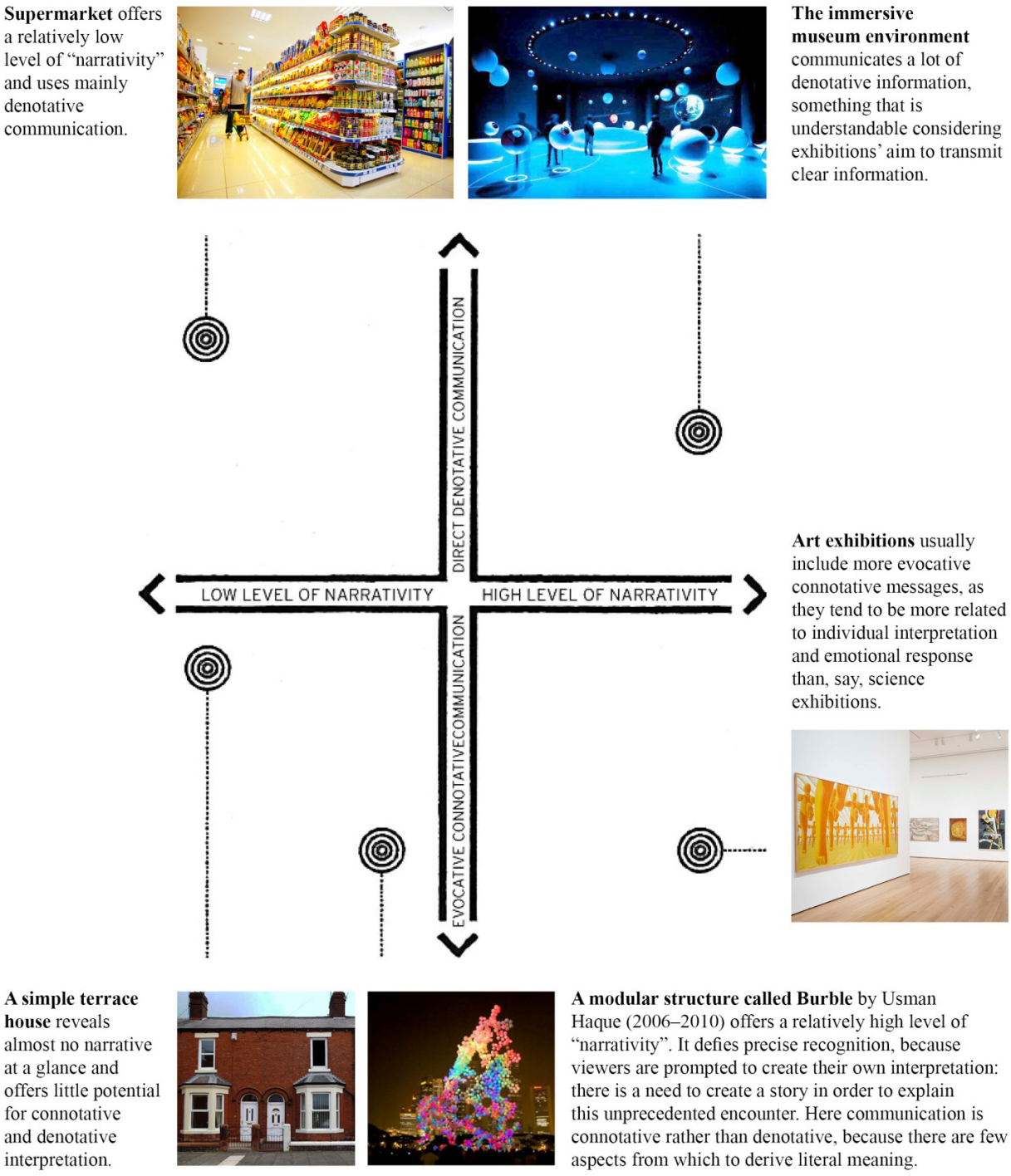

Fig.9. The scope of "storyness" of narrative represented by a space or an object can be described by evaluating the level of "narrativity" and the type of communication.

Space syntax: narrative and time

Museum building can also become a part of museological narrative. Basing her argument on the method of space syntax, Psarra explains that a clear link can be traced between tendencies in theories of knowledge and education prevalent at a certain historical period and museum architecture of the same era. According to Psarra, museum architecture has been progressing from "showing" to "telling" and from classification to narrative.[141] Discursive organisation in a museum implies a certain progression through time and space, thus restricting the choices of the visitor. It can, however, be strongly or weakly structured:

> When strongly structured, it has orientation based on sequence and causality, establishing a hierarchy among its elements in terms of their position in the expression. A weak narrative structure uses interconnections to enable its narrative units to equally structure its meaning. The narrative message becomes, thus, "integrated", including new latent messages arising from a number of connections. In the first case narrative favours temporal progression over space, and is grasped through time. In the second case it emphasises relations that defy time, collapsing into an integrating frame of space.[142]

Psarra gives the example of the National Museum of Scotland where temporal progression and spatial integration are conflated by combining the peripheral route and the intersecting circulation paths. The collection is organised chronologically by attributing each level of the building with a different historical period of Scottish history. Starting from the prehistoric times located in the basement, the displays in the central galleries progress towards the twentieth century and finally culminate with the roof terrace that reveals the contemporary

[141] She compares two purpose-built museums from the Victorian era, the Natural History Museum (opened in 1881) and the Kelvingrove Museum (1901), and two modern museums, The National Museum of Scotland (1998) and The Burrell Collection (1983). A computer analysis of the historical buildings in their original state revealed that their spatial layout was more integrated that it is now. The exhibition rooms were linked to each other in a simple way with most of them equally accessible. Such spatial arrangement encouraged observation and comparison. It also allowed for the installation of a display based on chronological, taxonomical or typological classification. However, the current layouts of these buildings are quite different. In order to reorganise the information from a classificatory system to a narrative, the routing throughout the display had to be at least partially restricted by organising it into sequences. Thus, the visitor would progress through the spaces and, at the same time, gradually gain knowledge. The two modern buildings are organized in a similar manner, but the gradual progression of information is expressed by means of organising the space into layers instead of linear sequences. Psarra 2005.
[142] *Ibidem*, p. 89.

panorama of Edinburgh. Movement within the galleries is organised in the same way. The spaces located around the perimeter of the building are relatively segregated by a layer of top-lit shafts, but they also allow various vistas to the central gallery thus attracting the visitors' attention towards this space. In order to access the core galleries located on different levels, one has to make an effort to move through the multi-layered interior, serving as a built metaphor for the complexity of history as a construct. At the same time, a variety of circulation routes and visual interconnections of spatially separate rooms allow the visitors to establish their own links between different historical periods. Psarra concludes that "the spatial integration of contents and their thematic coherence implies the message of history as a flow between periods, events and achievements".[143]

Psarra's analysis reveals how the building is perceived as a series of visual fields and a sequence of spaces which extend the meaning-making process. Time can be considered a quality of space and a constituent of narrative in virtually any museum building, because we experience space and display progressively, as we move through the museum and "read" the exhibition story. Hein draws our attention to the seemingly obvious fact that it takes time to learn. Learning is dependent on time being devoted thereto: what and how is learnt in ten minutes will be dramatically different from the learning outcomes of an hour.[144] Furthermore, research has proven that knowledge might be gained latently and only be consciously realised and applied weeks or even months after a visit to a museum.[145] Unfortunately, "the desire to extend visitor time does conflict with the marketing push for more and more visitors, which is often motivated by museums' increasing concern about justifying their existence".[146] Finally, when learning in museums, visitors explore their own personal relation to time: the passage of their lives that results in personal transformations. According to Hooper-Greenhill:

> Museum-based learning pulls together the past, present and future. In order to interpret new experiences in the present, learners must use their existing learning skills and their existing knowledge. These are the tools that enable them to appropriate and make their

[143] *Ibidem*, p. 91.
[144] Hein 1998, p. 172.
[145] Hooper-Greenhill 2007, p.176.
[146] Hein 1998, p. 172

> own their museum experience. As they do so, they lay down experiences and tacit knowledge that may be called upon in the future.[147]

From a phenomenological point of view, Norberg-Schultz observes that architecture can integrate basic temporal dimensions into spatial properties. A temporal sequence – which is an intrinsic quality of narrative – can be experienced by means of movement through a spatial arrangement. As shown by the method of syntactic analysis, the way one space is related to others can determine the direction and rhythm of movement. Norberg-Schultz sees life as continuous movement and explains direction and rhythm as qualities of our everyday existence. According to him, "the path is [...] a fundamental existential symbol which concretizes the dimension of time. Sometimes the path leads to a meaningful goal, where the movement is arrested and time becomes permanence – [...] the centre."[148] Thus the spatial organisation of the Museum of Scotland can be interpreted as an existential narrative of a human being as well as a nation, where vitality and continuous development is expressed by movement throughout the spaces and the fruition of this effort is presented in centrally located galleries.

There is, however, another aspect to the experience of time in museums, in that they often represent historical time. The architectural solutions in the Museum of Scotland also reference the medieval castles for which Scotland is famous. The circular volume on the northwest corner of the building evokes the Edinburgh castle's Half Moon Battery and the core galleries resemble the keep, while the central gallery space on the ground floor with its noticeably thick walls is reminiscent of a castle hall. This architectonic reference provides a unifying layer of Scottish identity to all the contents of the building and roots the display in its historical background.[149] Representing historical time in museums is directly related to memory. Maurice Halbwachs distinguishes two main concepts regarding the representation of the past: historical memory and collective memory. Historical memory transforms the entirety of the global history in an orderly schema and is often deprived of a personal voice.[150] Collective memory is selective in the manner that events are held in the living memory as long as it remains useful for the present. It also often omits such details as names and dates and mainly concentrates on general "currents of

[147] Hooper-Greenhill 2007, p. 176.
[148] Norberg-Shulz 1991, p. 55.
[149] Psarra 2005, pp. 90-91.
[150] Halbwachs 1950, pp. 64, 84.

thought and experience" of a particular period. Furthermore, individual memory is conditioned by the socio-cultural environment and thus dependent on collective memory.

Social groups of people construct collective memory around places that provide them with stability, history and identity.[151] Spaces are linked to the events that happened there and transformed into mental constructs in memory. These memories, in turn, help to "organize and retrieve lived experience and learnt knowledge".[152] Halbwachs calls such constructs "spatial frameworks" and describes them as compilations of schematic representations of space. Appealing to the collective and historical memory can stimulate the potential of museum architecture to communicate meaningful and evocative messages and thus leave a lasting impression on the public memory. Both, historical and collective memory, need to be mobilised in order to sustain *stabilitas loci*, or preserve the identity of a place for a certain period of time. According to Norberg-Schulz this quality is necessary for the development of individual and social identity – a slow process that activates collective as well as historical memory and requires a stable environment that does not change all the time.[153] Pallasmaa, however, describes the dangers of the fascination with timelessness in architecture.

Traditionally, this evasive quality of resistance to the ways of time is desirable in museum designs, because it symbolises the universal and timeless nature of knowledge. In line with the constructivist approach that contests this concept and offers more flexible and democratic interpretations, Pallasmaa advocates the move towards better recognition of the time flow. He contends that one of the key purposes of architecture is "mediating our relation with the frighteningly ephemeral dimension of time".[154] Pallasmaa argues that, by creating buildings to be objects dissociated from the temporal continuum, architects offer a disembodied and abstract spatial experience, thus robbing the visitor of the experience of time, causality and reality. As a solution the author suggests the creation of environments rich in sensorial experiences and representative of the natural temporal continuum which can made visible through traces of use

[151] *Ibidem* 1935, p. 181.
[152] Ekman 2012, p. 145
[153] Norberg-Schulz 1991, p. 18.
[154] Pallasmaa 1999.

and weathering. Such environments greatly contribute to the personal immersive experience that is so important for the constructivist model of learning.[155]

Performativity and theatricality

One of the possible embodiments of narrative in museums is performativity or "enactment, intervention, participation, involvement and response" in which the visitors are active and employ their imagination and emotions in order to engage with experiences as they are encountered in a museum.[156] Hein distinguishes two types of performativity that are often employed in learning process: drama – "the use of theatre techniques that engage the learner actively (through interaction with a first person interpreter or by being drawn into a theatrical process)" and theatre – "usually a more formal situation involving a script and a production that engage the visitor emotionally and intellectually but not necessarily physically".[157] Hein believes that these practises make the content of the museum more accessible to the visitors by allowing them use their bodies and imaginations in connecting with the objects and exploring their rich meanings.[158] The visitors, however, have to be made aware that they are in a performative space. As will be shown later, it is possible to communicate it through design. The framing of the spectacle through lighting, staged presentation of the exhibits and a theatrical play with the movement of the visitor can create certain expectations in the public and the act of looking becomes performative. The position of "the director" of this play no longer belongs solely to the curator. If the constructivist view to learning is adopted, the audience is given the possibility to "direct" their own performance.

Jenny Kidd analyses yet another aspect of performativity in museums: she reveals how architecture can become both an embodiment of history and a set for the play, by becoming a context for the performance and various memories arising from it.[159] The timelessness of architecture discussed earlier serves as a reassuring reminder of the stability of history and

[155] *Ibidem*.
[156] Hooper-Greenhill 2007, p. 37.
[157] Hein 1998, p. 168
[158] *Ibidem*.
[159] Jenny Kidd is Lecturer in Cultural Policy at City University London.

heritage. At the same time it might transmit certain negative images related to the period of time to which the building belongs. This is what happened in the performance "This Accursed Thing" analysed by Kidd.[160] Participants expressed their perception of the building as a container of historical narrative: "You are surrounded by history in a museum", as well as a stage for their performance: "It's like you're walking on to a set".[161] According to Kidd, this represents "a simultaneous sense of "place" and a desire for "dis-placement" from the reality of the museum (its familiarity and sets of expectations) or perhaps the intensity of the subject matter".[162] The author argues that a mix of the heritage presented by the museum and the site through which it is communicated as well as the novel use of space through a performance, creates a "safe" narrative space which in turn allows a coexistence of the institutional authority and the visitors" individual interpretations. Such "safe" space, where the visitors feel comfortable to discuss even negative personal memories or opinions is not static. Kidd's respondents revealed that they are in "a constant negotiation of the physical museum, the stories being presented, and their own personal responses to those stories that remind us how fragile and uneasy that narrative space might be".[163]

Greer Crawley quotes Arnold Aronson who explains that museum design resemble theatre design, because both focus on "the transformation of space, and the communication of information while manipulating the emotional response of spectators-occupants".[164] Nevertheless, if the narrative plays only a supporting role for the visual effects, the whole result seems lacking substance and authentic experience.[165] In such cases theatricality gives negative associations with staginess and lack of authenticity. Greer Crawley distinguishes two the most widely used adaptations of theatrical agents in current museum architecture: lighting as well as exits and entrances.[166] More and more often top lighting imitating natural light is being replaced by dramatised stage lighting. The functionality is abandoned over "selected visibility", which is

[160] Manchester Museum's Revealing Histories initiative in commemoration of the 200th anniversary of the Abolition of the Slave Trade Act in the UK; 2007.
[161] Kidd 2012, p. 80.
[162] *Ibidem*.
[163] *Ibidem*.
[164] Crawley 2012, p.12.
[165] Rees Leahy 2005, pp.109-110.
[166] Greer Crawley is Senior Lecturer in Spatial Design at Buckinghamshire New University and a visiting lecturer, MA Scenography, Central School of Speech and Drama as well as a practising designer and researcher.

seen by Aronson as a quality of postmodern design where the invisible, the hidden is as important as the visible.[167] In addition to this, such theatrical designs treat the exits and entrances as "key scenic elements signalling beginnings and endings and, as such, they can be used to frame narrative, suggest circulation and mark transition". Usage of such scenic techniques highly influences the context in which the exhibits are perceived. They can be completely enclosed allowing the visitors to focus their attention on a very limited amount of objects or more integrated in the general flow of the layout. Hence, the unifying scenography of the exhibition is actually composed of a number of smaller scenographies of exhibits.

Stephen Greenberg, an architect and a co-founder of *Metaphor*, argues for the creation of dynamic performance spaces in museums that he understands as complete experiences rather than as static objects. Greenberg draws on a theatre director Peter Brook's ideas and proposes the concept of a "vital museum", which would offer the audience a space that "resonates with them and their lives, a space where they can learn, explore and be inspired, a space as much in the audience's mind as it is physical".[168] The invisible barrier between the public and the performer is removed by engaging the viewer in the performance. However, Greenberg admits that rethinking the creative space is not enough; the nature of performance should also be reconsidered.[169] In order to do this *Metaphor* samples, mixes and layers various media: architectonic and scenographic, audio-visual and graphic.[170] The designers begin from developing a script, which structures the whole design process that follows. The idea remains shared in the whole team's minds, thus diminishing the importance of the isolated genius of an individual. The exhibition is usually organised through layering as well as forming pathways and themes, thus creating an installation at the building scale.

The permanent *Holocaust Exhibition* that Greenberg created together with his co-designer Bob Baxter and the museum's team is a good example of performativity prompted by design of the space. In addition to architectural means, the design team used a variety of media and techniques of film-making and storytelling.[171] The spatial layout and materiality organises

[167] Crawley 2012, p. 15.
[168] Greenberg 2005, p. 226.
[169] *Ibidem*, p. 229.
[170] *Ibidem* 2012, p. 95.
[171] Opened in 2000 at the Imperial War Museum, London.

the exhibition as a three part drama. On the first level the walls are made of fragmented planes that represent fragmentation of the German society in the pre-war years. Symbolic descent to the lower level symbolises the second part which represents the horrors of the Holocaust. The experience is strengthened by using dark backdrops and organising space in a clear geometric grid that represents the orderly and industrialised nature of the Nazi killing machine. The final, lighter and cosier spaces covered in wood show the aftermath of this tragic chapter in history. The whole composition of the exhibition is circular, because it begins and ends with oval shaped spaces, where lives of Jews are represented before and after the Holocaust. The circulation is rather restricted as the exhibition is organised chronologically and the entrance and exit are clearly marked. While it gives the impression of inevitable movement towards the tragic culmination of the story, it also signals a clear direction from the curator and the designer.

On one hand, such organisation is contradictory to the ideas of the "post-museum" which argues for more freedom for the visitors. On the other hand, in this case it prompts identification with the characters of the story – people whose lives were decided by some distant power institutions with no regard to personal needs. It also allows the visitors to have bodily experiences similar to those of Holocaust victims. They are crammed in a replica of a cattle wagon that was used to transport the Jews into concentrations camps; sit on a bench the Jews were forced to use as one of the measures of their segregation and move in a row along an enormous model of Auschwitz concentration camp as the people did when they were going to the gas chambers. While all of these embodied experiences have a strong emotional impact, the visitors are continuously aware of the constructiveness of the space and the experience.

The strict organisation is moderated by the variety of individualised micro experiences offered by the architectural design. The act of looking can happen in a variety of ways, thus making the experience more performative. For instance, apart from the rather obvious points of view, the visitors discover a multitude of unexpected vistas that often require going behind a panel or in the very corner of the room in order to perceive an exhibit. For instance, the huge model of the Auschwitz can be looked at through a narrow opening in the wall which positions the viewer at the very end of the model train that supposedly carries Jews into the camp. Most of these tiny sub-spaces can contain one person at a time, thus making the experience rather

isolated, but also more personalised. These stops also give time to contemplate and analyse the material more carefully.

The over-arching narrative structure of the exhibition is based on a strong bipolar opposition and the chromatic scheme is one of the main design techniques used to express it. The clear contrast between black and white represents the clash between the perpetrator and the victim, the organisational and the personal. The colours have a very strong emotional impact and help follow the conceptual organisation. White instantly attracts the eye in the depressingly dark room and often symbolises hope in desperate situations. They represent, however, an overreliance on two extreme positions used to construct the story. It is almost too clear whom to empathise with and who to blame for the tragic events. This is said by no means to neglect the fact that there were victims and perpetrators in the narrative of Holocaust. However, there were also people in between the two extremes, for instance, citizens of the Nazi occupied states that chose to help the Jews and risk their own lives. Such stories are mentioned only briefly at the very end of the exhibition and thus contributes to the literally and metaphorically "black and white" narrative.

In conclusion, using narrative as a primary means to convey the educational message has an undeniable potential. Spatial organisation as well as materiality of the built environment can contribute to this aim. However, it is not only physical qualities of architecture, but also its symbolic and metaphorical meanings that are integrated in the stories conveyed by the museum. Mediating human relationship to time understood as both, a passage of our lives and as historical continuity, is one of the main roles architecture has in constructing museological narrative. Embodying the passage of time through natural weathering of architecture creates an embodied sensory experience, which in turn enriches the learning process. Another way to activate the educational potential of narrative is performativity of space. It allows the visitors to enact a role, which represents a certain character in the story. This way, empathic and emotional response to the narrative results in active learning. There is a risk, however, of creating theatrical environments that have a strong emotional impact through their aesthetic character, but at the same time offer restricted and orchestrated experience. Such approach, unfortunately, does not reveal the potential variety of interpretational paths.

Fig.10. The Holocaust Exhibition. The bi-polar character of the over-arching narrative:
"An ordinary Adler typewriter of the period [...] sits in a space bounded by an organisation chart of the whole Nazi chain of command from Hitler down. This is printed in white out of black behind glass, so that visitors see their own reflection mirrored in the black perpetrator space, as they stand on a white floor, in victim space."[172]

[172] *Ibidem* 2005, p. 230.

Conclusion

Currently, the dominant discourses on architecture concentrate on buildings as finished objects and products of architectural profession. The buildings are usually represented by images of empty spaces baring no mark of usage or weathering. To accompany them, plans and sections are offered that are often puzzling for the untrained eye. Even texts complementing this visual information concentrate on formal and aesthetic characteristics. Recognising, as this thesis suggests, that architecture is not limited to a physical form or a profession broadens our understanding of it. Firstly, recognising the importance of all stages of architecture production, from design to appropriation, opens the discussion on how each of these steps can be modified, so that the final result – the building – is more user-oriented. Secondly, acknowledging that architecture is a field of practice riddled with conflicting politics and agendas means drawing the attention to its hidden cultural meanings and social potential. It also reveals the relationship between architecture and other fields, in this case – museums.

According to the branch of architectural theory introduced in *Chapter One,* architecture is remade through use and appropriation as much as through physical alterations. Each time the building is represented in a different medium, each time its physical surroundings or functions change, the meaning and potential of the building change as well. Museum buildings are good examples, because the way they are used largely depends on the prevailing episteme. In the "Western" world they are seen as tools for collecting, organising and communicating the knowledge. However, the balance and hierarchy between these three functions have significantly changed since the establishment of the first institutionalised museums in the late seventeenth century. This thesis analyses the latest shift: that from the modernist museum, which favoured accumulation and organisation of knowledge, towards the "post-museum", which prioritises mediation. Education is the key strategy of communication in the "post-museum". By now, learning has received a lot of attention in the field of museum studies. Its contextual, spatial and embodied nature has been widely recognised. However, the relationship between meaning making and museum architecture is not explored enough.

The limited understanding of architecture explained above is considered one of the main reasons for such lack of research. Nevertheless, exploring this relationship is essential in order to improve the way we use the existing and design new museums. It might also broaden our knowledge on the learning process and its relation to the physical environment. In hope of revealing how architecture contributes to learning in museums, this thesis analyses what seems to be the most important aspects of this relationship. It begins with the tangible features of architecture: the spatial organisation and physical qualities of museum buildings. Spatial organisation is related to providing physical and psychological comfort as well as freedom of movement. It also contributes to spatial and conceptual orientation of visitors. The concept of materiality is employed to approach the physical qualities of architecture and the impact they have on embodied learning and emotional responses of visitors. The second part of this thesis looks at abstract notions, such as social space and identity as well as narrative and theatricality. The former two are associated with the socio-cultural nature of learning and identification with certain places, while the latter pair is linked with the construction of memory and performative learning.

Being based in the field of museum studies, this research first looks at how museums can develop the alternative discourses on architecture and make them accessible to future users. The experimental architecture exhibitions that use innovative approaches and underexplored mediums are presented as examples. Such exhibitions also invite visitors to actively participate in the design process. Bearing in mind various learning techniques people use, it is important to extend the museum professionals', academics' and the public's involvement in the design process beyond producing written texts. Academic writing can be as inaccessible to the people outside the profession as technical architectural drawings are. Such alternative architecture exhibitions could provide an informal setting to discuss and experiment with various influences the built environment has on the processes that take place in museums, including, but not limited to learning. While it is not in the scope of this research to elaborate on this topic, visitor research is another way to get to know the museum public and its needs.[173] Acknowledging the fact that

[173] See Hooper-Greenhill 2007.

meaning making in the "post-museum" is open-ended, individually directed, unpredictable and susceptible to various responses, makes the active dialogue with the public important as ever.

In addition to this, visitors cannot successfully learn in museums if they are not given suitable space and enough time to concentrate and interpret the information. The effect spatial organisation and materiality of architecture has on learning goes beyond providing physically and psychologically comfortable environment. The spatial layout that accommodates the display plays an important role in structuring the narrative of the exhibition. In fact, a sequence of spaces is a sort of narrative on its own right. It determines the path, rhythm and pace of visitors' movement and thus influences their perception of the exhibit. Also, the organisation of spaces can facilitate orientation in the building and, consequently, the display. Furthermore, if the architectural layout complements the conceptual layout of the exhibition, they form a coherent over-arching narrative of the museum. Providing time for learning can also be done through architectural means. The organisation of spaces and their physical qualities can also be combined in order to support the curatorial intention by providing a temporal sequence and the pace of it.

Physical and psychological comfort is closely related to social comfort. In this case, the designers are dealing with the level of comfort of different groups in particular settings, the message the museum communicates to a particular ethnic or social group and what that message represents to this part of the public. Such messages can be transmitted not only through the symbolic meanings of architecture, but also through its spatial and physical qualities. Certain groups might feel uncomfortable because of the overwhelming monumentality of the building or the cultural information it mediates, for instance, primacy of a certain culture. The "post-museum" recognises its social responsibilities and promotes diversity and tolerance. It also acknowledges socio-cultural nature of knowledge and its role in identity formation. Hence, museum architecture should relate to communities and incite their identification with the institution. One of the ways to achieve this is to design the building that is rooted in local history and identity. Being able to identify with a place, in this case, the museum that provides positive learning experiences, plays an important role in the identity making process. It is also possible to create a space that prompts learning through interaction with other visitors, thus strengthening the links between community members and, consequently, the community and the museum.

Museum's ethical responsibility to the society is also related to the design solutions used in the mediation process. As exemplified by the various museums representing Holocaust, masterfully employed materiality combined with an emotional and controversial narrative can have a very strong impact on the visitor. The museum experience becomes embodied and performative which strengthens the emotional and cognitive response. It can, however, distract from learning and become more entertaining than contemplative. The "post-museum" argues for the integration of pleasurable experiences and meaning making. Nevertheless, a balance must be kept, as museums have a responsibility to avoid caricaturing value systems and bodies of knowledge. Another risk in using strong museological narratives combined with a pervasive architectural presence is that it might lead to a restrictive learning experience. If architecture shapes every move of visitors and guides their attention leaving little freedom of choice, then learners' ability to form their own interpretations is highly limited.

However, it is possible to argue that museum space should not be limited to a building. For instance, it could be extended to its urban or natural setting. This assumption does not deny the role architecture plays in museum learning. It does, however, suggest that this investigation could encompass the wider physical environment of museums: from their immediate surroundings to the cities or landscapes they are situated in. Greenberg suggests that the structure of an exhibition made of the interwoven layers extending from micro to macro levels could transcend the building, because "the historic fragments have simply got larger and some of the stories more epic in scale, grounded as they are in collective and personal memory."[174] A hypothesis could be made that learning experience in a museum that is immersed in an extensive park is different from that happening in an institution surrounded by the cityscape. This assumption is enabled by the recent recognition that museum experience lasts much longer than just the time spent in a museum. Visitors feel museum presence through media and social interactions, they tend to plan and anticipate the visit before it actually happens and continue to make meaning from the information perceived at the museum long after the visit ends. All of these processes contribute to museum learning, hence the impact physical environment has on them should not be neglected.

[174] Greenberg 2012, p. 97.

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Fig.9. Reproduced in: Greenberg, S., "Place, time and memory", in: MacLeod, S., Hourston Hanks, L., and Hale, J., (eds.), *Museum making. Narratives, architectures, exhibitions*. London & New York, NY: Routledge, 2012, p.95–104.
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