ÖZET

İÇ MEKAN DÜZENLEMESİ VE AKTİVİTE PROGRAMLAMASI İÇİN BİR ÖNERİ: İSTANBUL ARKEOLOJİ MÜZELERİ BÜNYESİNDE YER ALAN ÇOCUK MÜZESİ

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Bu çalışma, müze tasarımı ve müze eğitiminin ilişki ve etkileşimini anlamaya yönelik olup, ortaya çıkan bulguların Çocuk Müzesi örneği üzerinde uygulanmasıyla üç boyutlu somut bir sonuç elde etmeyi amaçlamaktadır. Doğru tasarım bir müzenin hedeflerine ulaşmasını sağlayabilir; müze tasarımı, müzenin ihtiyaç ve karakteriyle uyumlu olmalıdır. Bu tezin iki boyutu vardır: müze eğitimi ve müze tasarımı. Dolayısıyla, bu tez hem müze yöneticilerine, hem eğitimcilere hem de iç mekan tasarımcılarına hitap etmektedir. Örnek durum incelemesi olarak İstanbul Arkeoloji Müzesi içerisindeki Çocuk Müzesi ele alınmıştır. Okul gruplarının ve diğer ziyaretçilerin bu alanı daha verimli kullanmasını sağlamak amacıyla mekansal düzenlemeler yapılmasının yanı sıra eğitim faaliyetlerinin de geliştirilmesi gerekmektedir. Mekan düzenlemesinde gerekli değişikliklerin yapılabilmesi için ziyaretçilerin müze deneyimi hakkında bilgi sahibi olmamız gerekir; çünkü çocukların severek ziyaret edeceği bir model müze yaratmak ancak çocukların ne düşündüğünü ve ne istediğini bilerek olabilir. Bu amaçla gözlem, anket ve röportaj gibi metotlar kullanılmıştır. Araştırma iki ve üç boyutlu çizimlerle deateklenmistir; böylece müze eğitimi, özellikle bu amaç için tasarlanmış bir mekan içinde üç boyutlu bir şekilde incelenebilir. Son olarak Çocuk Müzesi'nin tasarlanmasıyla, uygulandığı takdirde çocukların keyifle vakit geçirip eğlenirken öğrendiği, gerekli eğitim enstrümanlarıyla donatılmış, eğlenceli eğitim aktiviteleriyle dolu dolu bir gün geçirebilecekleri ve zengin bir müze deneyimi kazanabilecekleri, yaşayan bir mekana ilk adımı atmış olacağız.

Anahtar Sözcükler: Çocuk Müzesi, Müze Eğitim ve Deneyimi, Üç Boyutlu Öğrenme, Sözsüz İletişim, Bariyersiz Yaklaşım.

ABSTRACT

A PROPOSAL FOR THE INTERIOR LAYOUT AND ACTIVITY PROGRAMMING: THE CHILDREN'S MUSEUM WITHIN THE ISTANBUL ARCHAEOLOGICAL MUSEUMS

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The topic of this thesis is museum education in relation to the design of the museum. The correct design can help a museum achieve its goals, meaning that the design should be consistent with the requirements and characteristics of a museum with a specific function. This thesis has two dimensions: museum education and design and thus this project will appeal to museum managers, educators and architectural/interior designers. A specific case study consists of a proposal for the redesign of the Children's Museum located within the Istanbul Archaeological Museums. This children's museum requires refurbishment and the current design should be modified and improved to incorporate new theories and methods in museum education, as well as to solve some of the problems with the use of this area, especially by large school groups. Observation, surveys and interviews have been conducted within the museum to understand the experience of children in this environment, which helps to create a model children museum that the children see as appropriate and enjoyable. This research is supplemented with two and three dimensional drawings. In this case the museum education is analyzed in a three dimensional way as a specially designed interior space that will add to the value of the visitors' experience. In the end, I present a fully developed refurbishment plan for the 'Children's Museum,' which will, if carried out, provide the children with a living space, educational tools, exercises and fun activities that will increase the length of their concentration span. A redesign of this children's museum could provide children with an enriched educational experience.

Keywords: Children's Museum, Museum Education and Experience, Three-Dimensional Learning, Self-Representation, Non-Verbal Communication, Bareer-Free Approach.

INTRODUCTION

> A common goal of children's museums is education through delightful play and hands-on experience (Cohen and McMurtry, 1985; 5).

Museums should be suitable places for children's education and individual development given the importance of three-dimensional learning, generating the use of multiple senses, "with innovative exhibits aimed at making education an enjoyable experience" (Wallen, 1979; 46). Children do not only have fun in museums; but also learn things simultaneously. Unlike the traditional and generally forceful and restricted school systems, museums have an advantage of being able to provide an opportunity for self-representation and individual learning through experimentation in an experiential context if designed and treated properly. This idea of non-verbal communication provided by the museum is considered to be one of the most important aspects of the "new museum" where the visitor is as important as the objects displayed; it is a barrier-free approach to education (Cohen and McMurtry, 1985; 9). Gail Dexter Lord explains the concept of the new museum as "the experience of meaning in three dimensions" (Lord, 1999; 3).

The topic of this thesis is museum education in relation museum design, with a case study of the children's section of the Istanbul Archaeological Museums. During my internship in the Istanbul Archaeological Museums, I began to notice

problems with the design of the museum, combined with the lack of educational facilities. My bachelor's degree in Interior Architecture and Environmental Design allows me to combine my educational background in design with my MA training in museum studies to create possible solutions to improve the museum environment. The Istanbul Archaeological Museums consists of several parts, and I chose the Children's Museum as my case study.

My constant visits to the Children's Museum made me realize that the museum was not functioning properly, despite the efforts of the volunteers and the eagerness and joy of the children. The Children's Museum was no longer seen as a gallery and had lost its function over time. The visiting school groups merely stopped at the Children's Museum at the end of their tour to use the space as a drawing atelier. It was forbidden to climb the castle at the center of the exhibits since it was not secure, similar to the Trojan horse at the entrance of the Children's Museum. Even the spaces "created for the children" to experience different points of view and different perspectives along with the insights about different eras were forbidden to them. All of these factors signal the need for an immediate museum refurbishment. Therefore, my aim in this thesis is to create a barrier-free Children's Museum, providing a delightful, engaging and memorable experience, through educational and interactive exhibits and programs, and a supportive and more

humane learning setting for children with hands-on activities and where the built environment contributes to a positive learning experience.

In this case study, I propose design changes that will create a playful learning experience in an aesthetically pleasing, positive, safe and fun learning environment for children. Thus, the learning experience can be complete with more impressive and long-lasting memories. The main reason for the existence of museums is to serve the public by preserving the cultural and natural heritage while providing educational tools and programs for public use (Cohen and McMurtry, 1985; 26), so that the museum will cease to be a house of objects and "don't touch" signs, but will be regarded as a meaningful and significant place.

This thesis consists of two parts: first the theoretical section about museum education, and second the practical part consisting of a case study. The theoretical section, literature review, is presented in five chapters. The second chapter includes a bibliography where I examine the scholarly works on the subjects of museum education and design.

The third chapter "Museums and Children" is a general introduction to children's museums and museum education, since museums are one of the most important institutions to share knowledge and create a positive learning environment. This section examines the success of children's museums and some particular examples of children's museums in a comparative context.

The fourth chapter, “Museum Design: Theoretical Considerations” is about museum-related issues such as the collection policy of the museum. In this chapter, solutions to the museum management are found, whereas in the fifth chapter, “Museum Design: Practical Considerations”, design questions and related issues are discussed. These two chapters define the criteria for the Children’s Museum, which makes it easier to design the museum within well-defined limits.

The second part of the thesis includes the case study and the design for the new Children’s Museum. The design process consists of two parts: the first is the analysis phase where the problems are identified and analyzed; the second part is the synthesis phase where solutions to the problems are pulled together and then implemented. The sixth chapter “Children’s Museum, Istanbul Archaeological Museums” is about the museum used in the case study, giving information about the history and design of the museum. The seventh chapter consists of an overall evaluation of the Children’s Museum with regards to the general aspects of the space in relation with its immediate environment. I will begin to examine the museum with a three-dimensional perspective. This chapter includes objective evaluations with references and standards as well as rather subjective evaluations analyzing the limitations and positive attributes of the Children’s Museum. In this chapter, different design proposals are made for the new Children’s Museum. There

is not one perfect and ideal answer for every issue, but rather a couple of alternative design suggestions for the refurbishment process.

The eighth chapter, "Proposal for a Developed and Improved Children's Museum", is where the design ideas start to gain a three-dimensional form with the help of the drawings. Here, the drawings for a developed and improved Children's Museum are presented, followed by their explanations featuring the most appropriate design concept and ideas. The exposure to information does not always result in the transfer of that information (Dean and Edson, 1996; 194), so I am trying to maximize the transfer of information with the use of appropriate tools for processing information – words, sensation and images – along with proper exhibition and lighting designs, a relaxing atmosphere, with the use of the proper learning tools – workshops, exhibits and guided tours. It is proven that, "in many instances visitors' interaction with individual exhibitions has been improved by changing the physical conditions, providing more opportunities for visitors to engage, feel rewarded, or be motivated" (Hein, 1998; 137).

The design elements was selected or developed from the suggestions in chapter six and combined to make a creative new design. This design aims to be unique though not necessarily the only solution, for there is no one ideal museum for the purpose.

A two-stage design program was developed along with the optional addition of the cafeteria area design. The staged design program will make it possible for the museum to chose from the stages of designs and refurbish the Children's Museum accordingly within their budget limit. This chapter is followed by a ninth chapter that briefly concludes what has been done in this thesis and how it can contribute to the practical aspects of museum design.

This research is based on a case study, for which field observation, on-site interviews and other data-gathering methods were used, as well as source literature. Surveys were conducted as to the questions relating to museum education, both with the museum staff and visitors. The museum design questions are more qualitative and based on personal experiences and expertise, with references from scholarly sources and designers' ideas and opinions. Quantitative analysis and statistical information was gained from the archives of the museum and the Ministry of Culture and Tourism, such as the records of visitors to the Children's Museum. Working in coordination with the staff of the museum was necessary for the completion of this study; especially for the evaluation part, almost all of the required information was available via the museum. For the results part, where the design process and ideas are of greatest importance, there is a more subjective evaluation of the interior design of the museum along with some interviews with the staff

members and museum visitors – students and children, for it is important to know how people feel when they visit the museum. If the experiences of the visitors can be visualized, then it may be possible to develop new design ideas to provide the best design possible for this museum. It is known that during people-environment transactions, environments are altered by the individuals and their behaviors, and therefore experiences are shaped by the environments (Steffy, 1990; 1). Here, with the new design of the Children's Museum, children would be able to explore a whole new and unique experience with the use of the environment.

PART 1: LITERATURE REVIEW

2 SOURCES FOR MUSEUM EDUCATION AND MUSEUM DESIGN

2.1 SOURCES ON MUSEUMS

Museum education is a topic that has been researched and analyzed in many works, especially in recent years. As I researched what has already been done on the subject, I found that there are satisfactory sources specifically on museum education that will provide a guide for my research. *Museums and Children: A Design Guide* by Uriel Cohen and Ruth McMurthy is one of the most extensive books on museums and children, as the title implies, and in this thesis acts as a major guide. *The Handbook for Museums*, by David Dean and Gary Edson is another useful book about museums, management and collection policies and museum education. *Museum Exhibition* by David Dean is a unique book about exhibition design covering the issue from theory to practice. Dean analyzes the process of designing and planning exhibitions and the steps for this process, such as collection care of exhibits, display evaluation, content and text development and computer usage, which have been of great importance for this thesis, in the refurbishment of the Children's Museum. The book has acted as a guidebook for exhibition evaluation and a checklist for to-do's and don't do's.

The Museum Experience and *Learning from Museums: Visitor Experiences and the Making of Meaning* by John Falk and Lynn Dierking, *Learning in the Museum* by George Hein, *Museums: Places of Learning* by George Hein and Mary Alexander are especially important and useful books for museum education. *Educational Role of the Museum* edited by Eilean Hooper-Greenhill includes articles about museum education, learning with collections and improving the museum experience such as "Improving Worksheets" by Gail Durbin; it is a book about the history of museum education as the title of Hooper-Greenhill's article suggests "The Past, the Present and the Future: Museum Education from the 1970s to the 1990s."

Two books that are covering almost all issues in museum management and planning; *The Manual of Museum Management* and *The Manual of Museum Planning* edited by Gail Dexter Lord and Barry Lord provide essential guidelines for my research. *The Manual of Museum Management* is a useful guidebook defining every stage of museum management, procedures and the policies related to the process such as collection and exhibition policies. The book is complemented with some case studies; for example, in the Case Study 2 – 1, "The Culture of Change and Staff Training at the Museum of Science and Industry in Manchester: Customer Care and Staff Training," Dr. Patrick Greene discusses ways of

improving the audience satisfaction in museums by training the staff and involving them in every stage of the decision-making process. Also the case studies by Robert P. Bergman and Janet Kamien provide useful guidelines. *The Manual of Museum Planning* is a book on museum planning in general as the title suggests. This book is written with the purpose of being a guide for everyone involved in the museum process of planning for changes, like creating new facilities or modifying an existing building or exhibition due to the dynamic, innovative and experimental nature of museums. *The Manual of Museum Exhibitions* edited by Gail Dexter and Barry Lord is a similar book, this time focusing on the planning, management and design of exhibits, which makes it one of the most useful books for this thesis for exhibition design and related issues. "How Museums Build Communities" by Gail Dexter Lord provided some key points for this thesis for evaluating the success of children's museums and what should be done for ensuring future success.

"Collections Management Policies" by Marie C. Malaro is an article on the issues covered by the collection management policy. *Üçüncü Uluslararası Tarih Kongresi, Tarih Yazımı ve Müzecilikte Yeni Yaklaşımlar: Küreselleşme ve Yerelleşme* (Third International History Congress, Writing History and New Approaches in Museology: Globalization and Localization) was a workshop organized by The Economic and Social History Foundation of Turkey. It included

new approaches for museum pedagogy, life-long learning methods and the creative applications of drama in museums and social environments. *Eğitim Ortamı Olarak Müzeler* (Museums as Educational Environments) edited by Kadriye Tezcan Akmehmet is a similar book about a workshop on museums, museum education and the interrelationship between museums and society. There are also some sources looking at children's museums in general and specific museums on particular issues, such as Barbara Punt's book *Doing it right: a Workbook for Improving Exhibit Labels*. This work defines the criteria for evaluating museum labels and information panels based on a case study for the Brooklyn Children's Museum, but can be applied to any type of museum for the label evaluation process. After the evaluation of the labels, Punt also offers some possible ways to improve exhibit labels and information panels, which are also used in this thesis in Chapter 6.

There are numerous articles and sources on museums dating back to the 1980s that can be applied to any time and place. The article of William Ruder, "The Image in the Mirror," gives some good insights about the problems museums are facing and about the ways to overcome these difficulties in order to survive. Ruder expresses that museums should have a stable public image in society and that they need to evolve to adjust to the changing demands of society throughout time. Otherwise, museums would not be able to survive in the ever-changing world.

"Exploration and Culture" by Kenneth Starr is specifically about the Exploratorium (founded in 1969) and its founder Frank Oppenheimer's educational philosophy, according to which the whole museum is education and where the balance of intellectual integrity and excitement is formed (Starr, 1982; 38). Oppenheimer's name has been associated with hands-on display ever since. In the second "Exploration and Culture" article, Frank Oppenheimer introduces the term museums of ideas where ways of thinking are taught rather than facts that need to be memorized.

There are articles dating back to the 1960s that discuss the basic issues in museum education. 'Kids, Kulture and Curiosity' by David Abbey is an article "directed toward the understanding of curiosity in all individuals" (Abbey, 1967; 30). Abbey believes that regardless of age, all underlying reasons of curiosity are common, and perception and learning occurs exactly in the same way both for children and adults, as does Michael Butler in his article "What Are We Teaching?" (1967). Abbey talks about some general assumptions on the solutions of the general problem of attracting and retaining attention in museums. Abbey lists some factors that are known to raise curiosity such as color, complexity, irregularity of arrangements and shapes and incongruity. This is also the reason why 'culture' is spelled with a 'K' as 'kulture' in the title-to raise interest and curiosity. Butler, on

the other hand, writes about the main aspect of education; what we should teach and therefore what we should know; that is the technique of reasoning. Another article from the 1960s is "The More Interpretive Exhibit" by Peter A. G. Brown, seeking an answer to the question of the interpretive exhibit – an exhibit that interprets itself. Finally, he comes up with six elements to consider about interpretive exhibits, which will be referred to in Chapter 4. "Head Strong for Head Start" by Carroll L. Williams, is also a 1967 article about a school-museum program that was part of the "Head Start" Program consisting of museum tours and field trips, which proved to be very successful.

The article "A Place to Learn" by Vincent J. Gabianelli and Edward A. Munyer is about The Object Gallery that opened in July 1973 in the Florida State Museum. The Object Gallery started as an experiment; a design idea for the gallery was proposed after an evaluation of its positive attributes and limitations. Later, the new Object Gallery was designed according to the wants and needs of the visitors in coordination with the curators. The observations during the exhibitions and the feedback from the visitors show that the end-project – though no museum project can ever be finished – turned out to be a success.

Eileen Wallen's article, "Children's Museums: Come of the Age", dates to 1979 and talks about the increasing awareness of museums as educational

institutions with innovative exhibits aimed to make education an enjoyable experience. New and different approaches, intended to make learning fun, are analyzed in this article. This article is mostly useful for offering many different types of activities that could take place in a children's museum, tried and approved by successful children's museums. This article is used as a checklist for the activities suggested in Chapter 8, along with other workshops from outstanding museums.

In his article "Theater or Playground", Albert Eide Parr describes the time we live in as a context where relevance is not an issue any more; the individual is the interpreter of oneself and the museum artifacts are extractions of reality perceived first-hand by the observer, requiring less need for reinterpretation. This situation causes museums to take new actions to encourage visitor participation and involvement. One difficulty of the situation for history and archaeology museums is that the objects already have a present meaning, created long before the observers were even born, and this message has to be communicated to the audience without disrupting the illusion of visitor participation. Thus, the level of participation becomes an important issue in these museums.

"A New Role: Teaching Through Exhibits" by W. T. O'dea is actually a speech about the role of science museums in teaching through exhibits. The speech

dates back to 1968 so the not-so new role of teaching through exhibits has now become an essential part of museums as cultural and educational institutions. Still, this article describes dynamic approaches including audience participation that are more than valid today. The exhibits may include live objects, experiments, complete presentations supported with taped commentaries, and sounds and lights, proving the museum to be capable of teaching through exhibits.

The thesis of Şeniz Atik, "Müzelerin Tanıtımında Görsel ve İşitsel Yöntemlerin Kullanımı ve İstanbul Arkeoloji Müzesinde Gerçekleme" (The Application of Audio-Visual Techniques for Museum Publicity and a Case Study of the Istanbul Archaeological Museums), is about the promotion of the museum in order to increase people's awareness of the importance of cultural heritage and to raise the interest of the museum audience. For my thesis, the part on the Children's Museum will be used in Chapter 4. *Istanbul Archaeological Museums* by Alpay Pasinli is a book on the collections of the museum, and in this thesis, it has been referred to for particular items such as the Sarcophagus of Mourning Women.

Books on hands-on museums and children's museums are of great significance since they are quite relevant to my subject. Linda D'Acquisto's *Learning on Display: Student-Created Museums That Build Understanding* is a simple book that considers especially teachers as the intended audience. In this book

D'Aquisto has tried to give basic information to get children acquainted with the museum-designing process and encourages them to create their own museum. The book may be considered a casual advice book with simple tips rather than a scholarly work, but still offers some useful suggestions which might be used in my case.

Tim Caulton's book *Hands-on Exhibitions: Managing Interactive Museums and Science Centers* is also useful, considering the fact that the best way to learn something is having an interactive relation with the object.

"Should Kids Dig?" by Joella G. Clark is an article about an archaeological project developed by the Gifted Consortia in 1995, consisting of a three-year archaeology course, which is the source of inspiration for the archaeology program in the new Children's Museum, consisting of simulated excavations.

Yeniden Müzeciliği Düşünmek (Reconsidering Museology), edited by Tomur Atagök, is the script of a workshop designed in order to adapt Turkish Museology to contemporary applications, needs and requirement. *Tarih Canavarı Mezopotamya* by Çiğdem Maner and *Gods and Gladiators: Everyday Life at the Dawn of Civilization* by Richard Tames and Philip Steele are also useful children's books that I used for the selection of display items and workshop choices. The two books cover Mesopotamia, the ancient Romans and the ancient Greeks – a long era

which forms a great range of the exhibits of the Istanbul Archaeological Museums and therefore the Children's Museum's.

2.2 SOURCES ON DESIGN

There are good works about interior design and the design process, including lighting and acoustics and how these affect the overall environment. I used *Yapı Tasarım Bilgisi* (Architect's Data) edited by Neufert for guidelines for human dimensions and some hints on colors and museums; as the title indicates, this is a book on everything an architect might need to know. *Bodyspace: Anthropometry, Ergonomics and Design* by Stephen Pheasant is also an important source for references on human scale and dimensions, which are the keystones of design to create spaces for human comfort and physical well-being. *Kids Spaces: Architecture for Children* is a reference book on children spaces, museums, schools, kindergartens, etc. I used this book as an inspiration for the design process to create a most child-friendly space.

Designing Interiors by Otie W. Kilmer and Rosemary Kilmer, and *Interior Design* by John F. Pile, are both introductory books to interior design and architecture. They give explanations of basic design vocabulary and issues and brief information about the design elements that are to be used in this case study.

"What Architects Need to Know, and Don't Want to Hear" by John D. Hilberry is an article describing the continuing problem of architects designing museums. This article states every aspect of museum design, and a basis for orderly thinking has been prepared by Hilberry, outlining the factors to be considered. This article and the checklist at the end act as a reminder by listing the functions of spaces and the activities that should be considered before getting to the actual design work. In Chapter 5, this checklist will be used to determine the special needs of the new activities as accessories and applications: climate control, security, communication systems, furniture, lighting and acoustical needs, etc.

Museum Design: Planning and Building for Art by Joan Darragh and James S. Snyder is the result of a research project on museum building design, about the process of planning, designing, renovating or building museums sponsored by the Museum Program of the National Endowment for the Arts in cooperation with The American Federation of Arts. The book is specifically about the design of art museums in America, but the principles can be applied to any kind of museum in any place.

Elements of Architectural Design: A Visual Source by Ernest Burden is an objective source examining the forms of architectural design throughout the ages. Burden examines the elements of architecture within a chronological framework

based on materials, style, elements and form without overemphasizing any of the styles or architectural movements. This book acts as a dictionary supported by visual examples. Especially Chapter 2 – Style has been useful for the design process of my thesis in Chapter 8.

A Design Manual: Museum Buildings by Paul von Naredi-Rainer is a book on museum design that identifies the principles of the museum as a building. This book analyzes a great variety of examples to show that there is no single solution, particular system or general applicable rules that can be established for museums. This book acts as a glossary rather than a handbook of rules.

Müzeler (Museums) by Erhan Balkan is a source on museums, starting with the definition of museums and covering the relevant issues to consider while designing a museum (such as exhibition design, circulation, eating, ventilation, air-conditioning, etc).

Architectural Lighting Design by Gary R. Steffy is a guide book for lighting designers; he starts by explaining the physiology of lighting and defining lighting as a biological problem with both physical and physiological effects, rather than an application of engineering principles. In this book, Steffy addresses every aspect of light, the physical and physiological factors, the colors of light and the types of lamps and lighting. This book, as is the case for many lighting designers, is my

guidebook for the lighting section in Chapter 5, explaining how and where each type and color of lamps and lighting applications should best be used.

Architectural Lighting Design by Frederick Jones is a detailed book on light, color, the properties of light (quality and quantity), the process of vision, the types of light sources and techniques, and design principles.

Daylight Performance of Buildings edited by Marc Fontoynant is an important book for analyzing the use of different ways of daylight into architectural spaces. The book is based on case studies where sixty day-lit buildings are evaluated in terms of the way daylight was used and distributed. Daylight has become a major issue in energy-conscious designs and environments and therefore has to be one of the main elements of design to be considered. This book analyzes different types of indoor and outdoor spaces and how lighting changes the environment; it offers much on the subject of daylight with the support of case studies.

Other sources on the issues of lighting include *Light Revealing Architecture* by Marietta S. Millet, *Designing with Light: Public Places: Lighting Solutions for Exhibitions, Museums and Historic Spaces* by Janet Turner and "Çağdaş Aydınlatma Tekniği ve Günümüz Müzeciliği Verilerine Göre Müze Yapıları İçin

Yeni Bir Mimari Yaklaşım" (Contemporary Lighting Techniques and A New Architectural Approach to Museum Buildings) by Hülya Kılıç.

Another useful source is the master's thesis of Erhan Dikel on the subject of three-dimensional object lighting, "Creating a Coordinate Database for the Lighting of Three-Dimensional Art Objects'. Here, Erhan Dikel talks about effective public display in museums, considering the need to illuminate the objects in the most effective way that would closely match the ideal image in the artist's / designer's mind. This method will be used to illuminate the objects in the alternative design drawings. The Children's Museum is an archaeological museum, and most of the objects were not designed to be displayed. Still, the items need certain lighting and Dikel's thesis provides useful insights about how to design an effective lighting system with the use of a standard system called Lighting Coordinates Database. For his PhD thesis, Dikel has conducted further research about museum lighting that provides useful information on the lighting of the display items.

It is an accepted fact that colors have effects and influences on human beings; therefore, to avoid the commonly made mistake of misusing colors, the book *Color, Environment and Human Response: An Interdisciplinary Understanding of Color and Its Use as a Beneficial Element in the Design of Architectural Environment* by Franke H. Mahnke has been used as a guide book since it covers the

relative issues on the use of color and its effects on people. This book is not only a color guide but also integrates color into the man-made environment with practical and useful solutions and examples to certain types of buildings.

Architectural Acoustics by David Egan and *Acoustic Design* by Duncan Templeton and David Saunders are the basic guidebooks I have used for the acoustics of the new Children's Museum.

Environmental Psychology: Principles and Practice by Robert Gifford is also a useful book that I used to describe and identify the people-environment transactions in the Children's Museum. This book firstly gives a definition of environmental psychology starting with a brief history of the newly recognized field of study that is about forty years old. Robert Gifford defines the issues studied by environmental psychologists as person-to-person and person-to-environment transactions. The research is mostly stimulated by the increasing awareness of environmental problems (such as energy shortages, pollution) or by pure curiosity to identify the reasons why and how people feel certain ways in certain environments. The studies in this book highly concentrate on the behaviors of individuals or small groups of people as office workers, dormitory residents or museum visitors rather than a whole community or society. Environmental psychologists aim to understand the transactions between people and environments – their physical settings, to finally use this information to solve various problems.

They believe that it is possible to create more humane buildings with the application of environmental psychology to the places where we live and work.

These subjects, individually, are analyzed in many sources; but it is difficult to find a study that covers both areas. This thesis aims to combine the theories to visualize a three-dimensional museum and create an environment where we can debate about the success and efficiency of the museum in relation to its design.

3 MUSEUMS AND CHILDREN

3.1 CHILDREN'S MUSEUMS

The first Children's Museum was founded in 1899 in New York, called the Brooklyn Children's Museum. As more than a hundred years have passed since the foundation of the first children's museums, they have grown into institutions and helped to change the concept of museums. The formal, seriously organized environment of the museum has developed into a lively-living space, enhancing a new nature, redefining the term "museum" and setting a completely different mood and casual atmosphere, as the focal point of the museum moved away from the objects to the visitors in the new museums (Cohen and McMurtry, 1985; 25). The nature of children's museums became diverse throughout the developmental process, so even those without original artifacts or collections started to be called as "museums," therefore expanding the definition of the term (Lord, 1999; 3). There has been a dramatic shift from didactic education to discovery learning and constructivism (Hein and Alexander, 1998; 35). With this new concept of museums, with few or no artifacts at all, museums can provide an enriching experience. Still, it has to be remembered that even though the museum concept is being redefined, "the primary function, the real purpose of the museum continues to be the

presentation of objects" (Naredi-Rainer, 2004; 42), along with education through the interpretation of the objects. The most important thing for idea museums is to achieve the right balance between ideas and objects while trying to move beyond collection-based agendas to the communication of meaning across disciplinary boundaries (Gosling, 2001; 469-471).

Gail Dexter Lord (1999:1) has discussed two new trends concerning children museums: one toward incorporating children's museums into existing cultural buildings; the other, having children's museums as individual cultural centers. The Children's Museum within the Istanbul Archaeological Museums fits into the first category. Such types of Children's museums embedded within a larger museum have the advantage of the use of major collections of the museum as part of the guided tours for children (Lord, 1999; 3).

Lord also gives three reasons for the continuing success of children's museums: demographics, social changes and feasibility (Lord, 1999; 5). Here I would like to use these as my guidelines to make an assessment of the potential of the Children's Museum in Istanbul. The first one is demographics – the growth in the number of children. This looks especially promising for Turkey considering the increasing numbers of births and reproductive women according to the figures of the Turkish Statistical Institute (http://www.tuik.gov.tr/VeriBilgi.do?tb_id=39&ust_id=11). The number of

children born alive has increased as infant and child mortality rates have decreased drastically in the 2000s. Therefore, the population of children is increasing (http://www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=210). In 2000, the population consisting of reproductive women was 18,201,844 and the infants they gave birth to then, constitute a large part of today's population; the number of children aged 0 to 4 was 6,584,822 in 2000 (http://www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=211). These children are now aged 8-12, which happens to be the intended audience for the Children's Museum.

The second factor discussed by Lord is social change, and this includes education and the changing patterns of families. Today, the number of working women is increasing in Turkey, and parents are better educated. In traditional extended families, either the grandparents used to take care of their grandchildren while the parents were working, or stay-at-home mothers would spend their time with their children. Today, the number of extended families with grandparents and relatives living under the same roof is decreasing; in 2006 only 13% of the households in Turkey consisted of extended families (http://tuik.gov.tr/PreIstatistikTablo.do?istab_id =763). The decreasing percentage is the main sign for changing life styles in Turkey. The education level of parents is increasing (Table 3.1), as is the number of working mothers (Table 3.2).

Census Year - Male		Illiterate	Literate but no school completed	Primary School	Junior High School	High School	College and Higher Degrees
1975	8 124 998	2 366 034	1 023 259	3 673 688	368 822	423 805	242 051
1980	8 988 685	2 231 044	964 495	4 198 485	483 788	593 384	510 044
1985	10 657 795	1 736 159	977 194	5 653 838	686 429	955 826	639 870
1990	12 679 888	1 673 221	720 893	6 965 653	1 005 194	1 371 921	927 560
2000	16 763 174	1 176 714	881 546	8 428 552	1 874 707	2 683 334	1 714 426
Female							
1975	8 017 847	5 255 950	409 361	1 920 132	167 014	199 221	56 453
1980	9 129 934	5 695 088	510 490	2 256 963	202 977	317 617	142 384
1985	10 708 464	4 916 964	903 038	3 860 956	302 049	520 731	197 302
1990	12 691 340	5 099 429	713 608	5 273 401	460 074	774 995	358 982
2000	16 897 656	4 625 828	1 270 255	7 644 977	896 060	1 539 581	910 885
Total - Percentage							
1975	100,00	47,32	8,90	34,73	3,33	3,87	1,85
1980	100,00	43,77	8,15	35,65	3,79	5,03	3,60
1985	100,00	31,16	8,81	44,57	4,63	6,92	3,92
1990	100,00	26,72	5,66	48,29	5,78	8,47	5,08
2000	100,00	17,25	6,40	47,77	8,23	12,55	7,80

Table 3.1 Table showing the percentage of the increase in the number of educated people between 1975 – 2000.

(http://www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=209)

Female Census Year	Total population	Population 12 years of age and over	Proportion of population 12 years of age and over	Labor force	Employed
1980	22 041 595	15 137 801	68,7	6 927 936	6 813 509
1985	24 992 483	17 535 704	70,2	7 647 265	7 492 733
1990	27 865 988	20 234 706	72,6	8 653 041	8 408 414
2000	33 457 192	25 683 222	76,8	10 164 540	9 429 736

Table 3.2 Table showing the increase in the number of working women (http://tuik.gov.tr/PreIstatistikTablo.do?istab_id=213)

Today, museums have evolved to become education, research and culture centers where not only collections are preserved and exhibited, but also visitors are entertained with a learning experience, eating in cafes, resting in retreat spots, accompanied by conferences, shows, concerts and other special events and activities; in other words, people are spending a day in art and culture (Atagök, 1999; 74). Nowadays, working parents have little time to spend with their children or feel that they have less time in the ever-changing world and the constant flow of time. Combined with the increasing importance placed on children and their education, parents have started to think that the children's free time should be filled with fun but also educational activities, and museums can constitute an important part of this family time.

The changing patterns of cities also affect the way people behave. Nowadays, it is perceived that the relationship between neighbors is not as strong as it used to be, and that the streets and the people are no longer safe. The following table (Table 3.3) exhibiting Turkish people's feelings about environmental security from the Life Satisfaction survey shows that women are still more concerned about environmental security compared to the men surveyed. With the greater emphasis placed on children, parents have started to think of museums as safe spaces providing valuable and unique experience for their children (O'Neill, 2003; 25).

	Environmental Security	Years - Percentage				
		2003	**2004**	**2005**	**2006**	**2007**
Total						
	Very secure	8,5	7,8	7,7	8,7	10,4
	Secure	57,8	38,6	36,9	38,5	39,6
	Neither secured nor unsecured	-	18,8	16,1	17,2	17,3
	Not secure	26,4	22,9	25,7	23,2	23,8
	Not secure at all	7,3	11,9	13,7	12,5	9,1
Female						
	Very secure	5,4	5,4	4,4	6,1	7,5
	Secure	46,8	31,6	31,2	31,5	31,9
	Neither secured nor unsecured	-	18,4	12,8	15,8	16,2
	Not secure	35,4	28,0	32,0	28,2	29,9
	Not secure at all	12,3	16,7	19,6	18,5	14,5
Male						
	Very secure	11,6	10,2	11,0	11,4	13,2
	Secure	68,7	45,9	42,8	45,6	47,5
	Neither secured nor unsecured	-	19,2	19,3	18,5	18,4
	Not secure	17,4	17,7	19,3	18,1	17,5
	Not secure at all	2,3	7,0	7,6	6,4	3,4

Table 3.3 Table showing the percentage of the people's satisfaction on environmental security between the years 2003-2007 based on Life Satisfaction Survey (http://tuik.gov.tr/PreIstatistikTablo.do?istab_id=938)

The last factor Lord takes into consideration is feasibility; Lord sees children's museums as cost-effective institutions, generating more income than any other type of museum with the constant flow of children and students (Lord, 1999; 7). This can also be applied to the Children's Museum, since entrance is only free for children. Especially on weekends, when there are children, there surely will be parents with them because adults are seeking opportunities to learn with their

families (Dean and Edson, 1996; 192). One economic reason for the success of children's museums is that they receive more visitors than any other type of museum through repeat visits either by school groups or families, especially in this age group, where educational activities are favored as spare-time activities. Lord states that children's museums require less capital, owing to the flexible nature of the museum type, therefore generating a greater income (Lord, 1999; 7).

To conclude, it can be said that in such a fast developing city as Istanbul, the Children's Museum as part of the award-winning Archaeological Museum can be quite successful as an enhanced children's museum. The demographics of the last seven years can be seen as an indication for the next few years. People are more educated, and therefore lifestyles and patterns are changing. Children's museums are also cost-effective and profitable, so the Children's Museum can only improve from now on. One "danger" Lord foresees is the inability of the children's museum to grow up (Lord, 1999; 7), which is exactly the problem for the Children's Museum. Hidden in the Istanbul Archaeological Museums, the Children's Museum does not have a character or an identity of its own. This needs to be changed through the refurbishment.

Having completed a general outlook for the future success of the Children's Museum with the guidance of Gail Dexter Lord, let's look at particular children

museums, some for their interesting suggested activities and some for their similarity to the Children's Museum as part of a larger social context.

3.2 EXAMPLES OF CHILDREN'S MUSEUMS

Children's Museums as Separate Institutions

As the first museum for children, the Brooklyn Children's Museum (http://www.brooklynkids.org/) is an important museum. It has set an example for many children museums from the day it was founded in 1899. The museum has a collection of 30.000 objects: cultural objects and natural-history specimens. Parental involvement is encouraged in the museum, and so the staff offers family trips in the museum. The museum offers after-school and camp/summer-camp programs as well as school programs on topics such as science, art and culture, and history. The programs are composed of hands-on and multi-sensory exhibits. It is also possible to give birthday parties in the museum, and this makes the children feel comfortable in a museum environment. The family membership fees range from 60$ to 275$.

The Ontario Science Centre in Toronto, Canada (http://www.ontariosciencecentre.ca/) wants to get the children engaged in a complete experience, not only of the museum but also the world in which they live,

by providing them with games testing memory and perception, hands-on experience, simulations of moon-landing, the use of mechanical tools and a general involvement them in a whole new series of experiments that would make children interested in science, museums and even the learning process disliked by many. The museum shows educational IMAX films relevant to their mission, which is to delight, inform and challenge visitors through engaging and thought-provoking experiences in science and technology. The daily entrance fees range from 11 to 25$ depending on age, including an IMAX film and the museum provides regular or gold memberships.

Figures 3.1 – 3.2 The Sleepover in Ontario Science Center, Toronto (http://www.ontariosciencecentre.ca/sleepovers/default.asp)

The museum also offers summer science camps with one or two-week programs for 5 to 14-year-olds and a science school for a whole semester for high

school students as a university preparation program where children and teenagers can benefit from the social and informal learning experience. The most enthusiastically received experience provided by the museum is the sleepovers that allow the children to spend a night at the museum where they can sleep among the exhibits for 20$ (figures 3.1 and 3.2). This is a nice example to show children that museums do not always have to be "formal" places - you can even have pillow fights in a museum!

The Staten Island Children's Museum (http://www.statenislandkids.org/) offers interactive exhibitions and creative workshops complete with hands-on experiences, experimenting with three-dimensional objects and environments – there, one can be a pirate on a pirate ship, walk on snow shoes, see or hear like a dog or a pigeon, crawl through a human-size anthill, explore a rainforest canopy and cave, experience how to be a firefighter, and in general explore different aspects of nature and human life. Children also have an opportunity to express themselves through acting, which enhances creativity. The museum's aim is to "appeal to the intrepid explorer in every child, launching children on a voyage of discovery - about themselves and the world around them" (http://statenislandkids.org/ index.html). The museum offers privileges to members, and birthday parties are also held in the museum. Admission is 5 $ for every person

one year and older and free for members; membership fees range from 75 to 500 $. The museum also offers 12-week-long toddler programs for members for 100 $ which acts as a kindergarten. The outdoor usage of the museum is effective as seen in figure 3.3.

Figure 3.3 The Staten Island Children's Museum; Sea of Boats featuring boats, a lighthouse and a crow's nest (http://statenislandkids.org/exh/seaboat.html)

Children's Museums as Part of Larger Museums

Tropenmuseum Junior (http://www.kit.nl/smartsite.shtml?ch=FAB&id=7501) was founded in 1975 in Amsterdam, Netherlands, as part of the Tropenmuseum. The museum's mission is to open new windows on different lives

for the children and "engage the hearts and minds of children when learning about other cultures" (http://www.tropenmuseum.nl/smartsite.shtml?ch=FAB&id= 501). The museum offers guided Bombay tours for children between 6 and 13, but this is not a simple Bombay exhibition. This is a guided tour that not only introduces children to Bombay, but also to the stories of the people of Bombay, making Bombay a living space within a context. The tour is complemented with stories, objects, dance, music, tastes and smells. "Themes highlighted in the exhibition are the contrast between rich and poor, child labour, family values, a city bursting at the seams, and Bollywood, India's popular film industry" (http://www.tropenmuseum.nl/smartsite.shtml?ch=FAB&id=7501). The admission fee of the museum is 20 Euro for families, free for children under 5, and 4 Euro for children between 6 and 17.

The British Museum (www.britishmuseum.org) is a different example, because it does not have a separate children's museum, but a wide range of activities, games and events to get children engaged in the museum experience, which should be the primary goal of every museum. The education program is integrated to the museum, rather than the museum being dedicated to children only. The museum provides activities for both school groups and children with their families. The museum admission is free. Touch tours where visitors can handle the

objects are available in some halls, and the exhibits are accompanied by audio guides in most galleries. There is a free museum library for children, Hamlyn Children's Library. The museum offers thought sessions and study days for school groups that take place in the museum and provide the teachers with exercises that students can do in their classes, either as preparation or after the museum visit. Families with children also get a wide range of activity choices including traveling in time in Ancient Greece, hunting for dragons, sailing on the Nile and many more. The museum also gives backpacks for family tours with puzzles, games and family activities to do in the museum, along with the option of borrowing crayons, colored pencils and pads from the museum for painting. The museum admission is free for everyone.

Children's Museums in Turkey

The Museum of Anatolian Civilizations in Ankara offers many activities for children. The museum has the basement floor designed as the Children's Museum although is not called a museum, but instead it is defined as an "atelier" for children. The ateliers include tablets and coins, ceramics and ceramic recognition, molding, and art and drama spaces. The museum offer guided tours to the school groups where the tour guides use a basket of replicas for the children to hold and feel the materials and the weight of the objects they see. The 3D Çatalhöyük model

is also a good example of an environmental exhibit approach placing artifacts in their context. There are also workshops where the children create their own calendars and brochures and the children even wrote and painted their own book – a giant book named *The Giant Book of Civilizations*. The museum also designs themed events: in 2008, children designed clothes for a Phrygian costume show and made Phrygian ceramics as part of the Phrygian theme. In 2006, the theme was jewelry, and children designed bead necklaces, bracelets, etc. The museum also offers excavations for children; first the children are given a lecture on excavations, the legal requirements, how to excavate, by museum staff and professional archaeologists, and then children find sherds of replica pottery on the excavation site, which makes children interested in excavations and the cultural heritage in general. The Museum of Anatolian Civilizations, with almost the same budget as the Istanbul Archaeological Museums, does a nice job in the area of education with the help of sponsors and volunteers. The admission is free for students and children under 18 and 15 YTL for adults.

The Rahmi Koç Museum in Istanbul (http://www.rmk-museum.org.tr) is an industrial and engineering history museum. The environmental exhibitions showing the context of items are successful in creating an image for the visitors accompanied by sound programs and moving graphics. The working cutaways show sections of

everyday household items or other examples such as a car and illustrate how these objects work. A hands-on option is available in some parts of the museum and in the Hands-on Gallery, where visitors can try and experiment on some items which makes it easier to learn. The objects are complemented by audio guides in some instances and sound and visuals in others. The museum provides education packages for school groups, and weekend activities include interactive learning processes from professionals and a train ride along the shores of the Golden Horn or tours of the museum ground on historical carts. The museum has a Museum Outreach Program, consisting of a "Müzebüs" (Museum Bus) that goes to underprivileged parts and schools of Turkey with a traveling exhibition; with this approach the museum reaches out to children who have never even seen a museum before.

There are numerous successful museums in Turkey, Europe and around the world; they all show different characteristics, emphasize different aspects, offer different perspectives and experiences. After shortly looking at what has been done in other children's museums, it will be easier to assess the current state of the Children's Museum, its shortcoming and its potential to be fully explored.

4 MUSEUMS: THEORETICAL AND PRACTICAL CONSIDERATIONS

> Like all complex institutions today, museums require planning if they are to meet both the demands within their walls – the inherently growing collections – and the changing needs of their public, both actual and potential (Lord and Lord, 2003; 2).

Architects need to design museums with respect to future and further needs and eventually end up designing for "a client that does not yet exist" (Hilberry, 1983; 55). Designing a museum starts with defining the goals, objectives and audience, the current strengths and limitations and with deciding on the programs and activities to be provided (Hilberry, 1983; 55). The goals of museum planning are defined as (Lord and Lord, 2003; 2):

- Providing space and facilities that are both aesthetically pleasing and effective in preserving and interpreting museum collections for visitors.
- Establishing and/or maintaining an institution which can perform these functions effectively.

In this chapter, design solutions with workshops and activities for this model will be provided as well as a new mission statement, goals and objectives, complemented with the theoretical information we need on the relevant issues. The

theoretical and practical considerations will be followed by an evaluation of the museum, analyzing the strengths and the limitations and a case study.

> The spirit inherent in children's museums is an excellent catalyst for the design of all museums. Their goals, image, form, and organization are closer to the museum of the future than those of the conventional, traditional museums of the past (Cohen and McMurtry, 1985; 2).

The success of a museum can be evaluated by two factors: visitor responsiveness and creativity (Lord and Lord, 1997; 87). Visitor responsiveness is the response from the visitors; the more appropriate the programs are for the visitors the more positive the response. This success can only be continuous with continual monitoring and evaluations. Creativity is related to the design of the museum – though it certainly affects the response of the visitors; the design of the museum, the lighting, the placement of the exhibit items and display cabinets and finally the overall atmosphere of the space contributes to the success of the museum (Lord and Lord, 1997; 87). Even though designing a children's museum is a promising step, it is still not enough. In our world of change, museums should also work hard and continuously in order to stay contemporary (Ruder, 1984; 19), and this is exactly where the Children's Museum failed.

Children's museums should indeed carry all the characteristics of a contemporary museum and even more. Thus, in this chapter, the idea of the traditional museum will be left behind and a different atmosphere inside the traditional and classical Archaeological Museum will be created, as well as a contrast of spaces. Everyone is looking for enrichment in the quality of life and to serve the public appropriately; therefore, museums need innovative programming to capture a child's mind and imagination (Ruder, 1984; 18), as I am trying to achieve with the alternative design to the Children's Museum.

The headings under this chapter will be about issues related to the children's museum, which require further explanation, starting with basics such as management and exhibition policies, or the notion of curiosity and how we can use this attribute to our advantage. The overall design approaches will also be analyzed, such as the philosophies of presentation, or more specific things, such as the label writing process, displays and activities.

4.1 Children and Curiosity

The amount of curiosity depends on stimuli such as intensity, color, novelty, surprise and complexity of an exhibit or space; too much complexity, for instance, seems hard to understand and does not evoke curiosity, while too little complexity seems easy and obvious, and therefore does not raise any interest in the audience.

Thus, the right intensity of these factors is the key to attracting visitors (Abbey, 1967; 32).

People and especially children tend to touch and interact with objects as a result of their curiosity, and handling objects is an important aspect of children's learning (Cohen and McMurtry, 1985; 6). Without the hands-on experience, it can only be considered a limited museum experience, which is exactly what should be avoided in children's museums; hands-on experience stimulates interest.

In an unpublished paper of the Boston Children's Museum, "Interactive Exhibits at the Boston Children's Museum" (p.3), Elaine Gurian and Janet Kamien give an example as to how there might be cases where the object is not understood without the hands-on experience: "The best loved example from our museum is the hands-on display of Eskimo snow goggles. It is difficult to understand how these wooden goggles can cut down the glare of the snow without trying them on; snow goggles are to look through not look at" (Cohen and McMurtry, 1985; 6). Experiments, games and multi-sensory and multi-dimensional exhibits create a suitable environment for individualized and experiential learning, which is accepted to be a more valuable way of learning, more powerful than writing and words.

4.2 The Interpretive Exhibit

Peter A. G. Brown describes the interpretive exhibit as an exhibit designed for a much broader public that interprets itself, that is translated into a more familiar language with the help of audio guides, computer terminals and illustrative representation, sometimes even by acting out (Brown, 1967; 31-32). Brown identifies six elements to consider, which will be used here for assessment.

4.2.1 Mission Statement

Marie C. Malaro defines the collection management policy as a detailed, written statement that sets forth the purpose of a museum and its goals, and explains how these goals are interpreted in its collections activity (Malaro, 1979: 57). The collection policy always starts with the mission statement of the museum and includes other policies, such as the exhibition policy. The process of designing a new and fully-functioning museum starts by developing a mission statement that represents the museum's voice. The importance of the mission statement should not be underestimated, so that we can make the audience interested in what we are offering.

The mission statement defines several guidelines of the museum program:

- What kind of programs will be planned to carry out the organization's stated purpose?

- What kinds of audiences – and in what numbers and with what ages, abilities and levels of perception – will these programs be intended to serve?

- What other ancillary services will be provided to accommodate these audiences?

- What are the special requirements of the region from which these audiences are drawn?

- What level of staffing will be needed to organize these programs and to manage them and the services and facilities needed to implement them?

- What resources will be needed to sustain these programs and services, and how can they be answered? (Darragh and Snyder, 1993; 33-34)

The mission should inspire people; if this is not the case, then there must be something wrong with the statement; either it is out-dated, has become irrelevant or less significant over time, or it has been stated incorrectly in the beginning, so it has to be changed or revised to inspire the museum staff, volunteers and most importantly the visitors (Lord and Lord, 1997; 6). In this case study, it is not enough for the Istanbul Archaeological Museums to have a mission statement, but the Children's Museum should have its own and separate mission statement because even though they share the collections and the display items, they still serve different spectators.

The mission of the Children's Museum is:

1. to preserve and exhibit the historical and archaeological artifacts and objects,

2. to provide the children with an environment where they would see how the cultural heritage is preserved and exhibited,

3. to encourage them to learn about the historical and archaeological values – such as the history of the societies and learning about the artifacts from excavations,

4. to help the children have a personal relationship with the objects, thus creating consciousness of the importance of protecting and preserving cultural heritage (Atik, 1996; 73).

The original mission statement of the Children's Museum is outdated and the display items are not covered by the definitions in the mission statement; therefore, it has to be revised, together with the collections of the Children's Museum, to create harmony and unity in the collections. The exhibitions and the language used have lost their meaning, and the museum has turned into a playground; these are the most important factors that can endanger museums (Butler, 1968; 34).

The mission statement of the Children's Museum is stated in this information panel on the left of the entrance (see figure 4.1). The idea of introducing the original artifacts as the prototypes of the objects children see and use in their daily lives is a good idea, but it is not completely fulfilled in the Children's Museum.

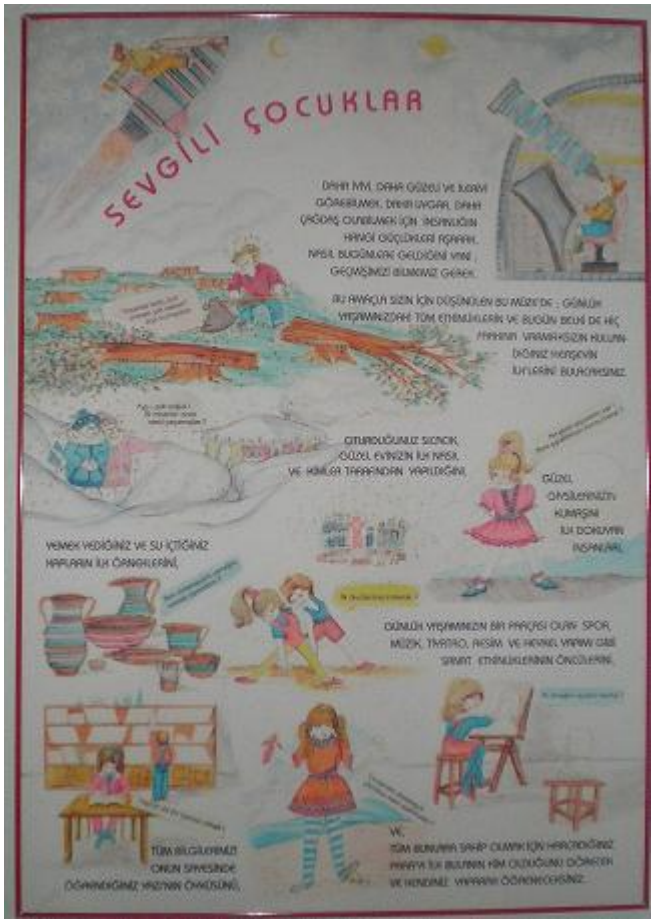


Figure 4.1 The information panel about the mission statement of the Children's Museum (Photograph by M. Bige Varlıer)

The mission statement is too general, so it has to be narrowed down to a specific topic and sub-ideas from the main theme and the display objects have to be revised to increase in number and variety, so that they cover the theme defined by the mission statement.

4.2.2 Limits of Contents

This term refers to limiting the vast amount of materials to the ones relevant to the museum's mission statement (Brown, 1967; 32). In the case of the Children's Museum, I would suggest increasing the number of materials displayed in the museum. The exhibit items are limited to children, the scribbles and notes of children, and the like, but the mission statement clearly states that the museum wants children to learn about the origins of almost everything in the historical record. Thus, the mission statement defines a broader display with a varying range of objects, not only limited to the ones that belong to children.

4.2.3 Material Available

This term is used to define the available display items in the museum (Brown, 1967; 32). Seeing three-dimensional objects is definitely more effective than looking at two-dimensional pictures and photographs, like the photographs displayed on the castle in the center of the current museum. Whenever possible, the original three-dimensional objects should be used, but when the original artifacts are hard to display, then we might use a photograph or picture instead. For example, the photographs on the walls of the castle show pottery, coins, figurines and statues, and the artifacts in these pictures can be found in the museum collections (figures 4.2

and 4.3). These artifacts can also be supported with the use of additional audio and visual materials.

Figures 4.2 – 4.3 Pictures displayed on the castle (Photographs by M. Bige Varlıer)

4.2.4 Attention Span

The most important thing to do in the museum is to keep visitors involved without overloading them. The average time for reading labels is ten seconds or less (Falk and Dierking, 2002; 71), and audio guides and printed materials can only keep the audience busy and interested for sixty to seventy seconds before they lose interest (Brown, 1967; 32). The overall attention starts to decline after about half an hour (Hein and Alexander, 1998; 14). In the Children's Museum, we will look for ways to keep the visitors' interest as long as possible. For instance, learning through games and play with repetition might be a good way to teach children and keep them

interested in the subject. Another approach would be using the most important elements of all the children's museums, hands-on experience and workshops. These are not the main components of a children's museum simply because they are fun, but rather because they help children think on their own and make their own inferences from the exhibits.

4.2.5 Packaging

With this term, Brown refers to the way in which an object is displayed, with lights, audio and visual aids, information panels, colors, and so on. He talks about the necessity to avoid over-packaging in presentation (Brown, 1967; 32); but in the case of the Children's Museum, there is no package at all. There are overloaded information panels, and given the attention span of seventy seconds, one can only read about half of one panel. The information panels should be changed to lighten the package, while audio and visual materials are required to make the package more delightful.

4.2.6 Audience Participation

The museum visitors expect to be actively involved with the exhibits rather than just stare at the display cases, to learn informally as long as they are also

entertained to keep their interest (Caulton, 1998; 1). Therefore, it is necessary to appoint a part of the Children's Museum for interactive experiences, which improve the children's learning experiences in the museum, and challenge them to think, try, analyze, make choices and play roles (Cohen and McMurtry, 1985; 30). The current Children's Museum fails to provide the most important attributes associated with children's museums in general and with museum education, which are interactive and participatory exhibits.

Visitors, especially children, prefer interactive and participatory exhibits (Hein and Alexander, 1998; 16). Exhibits complemented with wall-texts, labels and audio-guides help visitors with the interpretation of the artifacts on display. When display items are complemented with sounds and lights, they create a three-dimensional memory, which lasts longer than the information gained from simple exhibits. Brown suggests ways to get the audience to participate by making the visitor do something, such as taking their shoes off before entering a Japanese home exhibit, or giving them something to taste, feel or smell so that they get involved in the experience (Brown, 1967; 32). Worksheets are also one of the many methods to interpret museum collections and can be effective in getting the visitors engaged in the museum and related with the objects based on the guidelines on the worksheets. They can set up an estimate time line and ensure the efficient use of time, space and

collections if designed properly (Durbin, 1996; 279). (Check Appendix A for sample worksheets from different museums.)

> An average child can understand anything that an average grown-up can, if the child's experience is comparable. A child cannot understand an idea without such experience, that is, merely by hearing the idea described and by attaching a name to the principle. It is an educated ability to learn from words. The child, until he is old, learns by seeing, feeling, smelling and tasting. The museum is equipped to furnish experience (Butler, 1968; 34).

The most effective way to get someone engaged in a subject is to get them involved in the core of the activity (Bergman, 1997; 94). Therefore, children could work on preparing their own exhibitions in the Children's Museum, write their own labels, plan the exhibition and guide visitors through their exhibition. Children can come up with interesting design and exhibition decisions through brainstorming if they are given the responsibility. The exhibition design can be developed by answering some basic questions:

- What will we use to tell our story? What objects and images will we select, and what presentation methods will we use to display them?
- How will we get visitors to experience our story? How will we make our exhibit relevant to visitors? How can we engage their senses?
- What will our completed exhibit look like? What inexpensive materials can we use to create our exhibit? How will we plan our space?

- Will our exhibition work? Will visitors like our exhibit? Will it be a cohesive whole? (D'Acquisto, 2006; 115)

These questions – also forming the foundation of this thesis – can bring up interesting new ideas; such an exhibition workshop can develop the critical and creative thinking skills of children as well as giving them an insight into how museums, curators and designers work.

4.3 Philosophies of Presentation

"Philosophy of presentation" is a term used to define the way museums use the context of the exhibition to communicate with the public (Lord and Lord, 1997; 88). The items currently displayed in the Children's Museum can be considered eclectic. They show the origins of houses, writing, sewing, and other daily activities and this causes confusion, for the chronological approach is not handled properly. In the new Children's Museum, various philosophies of presentation will be used to create different affects. These philosophies are:[1]

4.3.1 Contemplative Presentation:

In this philosophy of presentation, the artifacts are exhibited in an aesthetic and affective mode; this mode will be used for the exhibition of the 3D models.

[1] For further information see; Lord, Barry and Gail Dexter Lord, eds. *The Manual of Museum Management*. CA: Altamira Press. 1997. Print.

4.3.2 Thematic Presentation: These are didactic displays that place the museum object in a broader context with graphic and other interpretive devices. This type will be used for the original artifacts that will be displayed in the display cabinets accompanied by information panels (see figure 4.4), graphics, and audio and visual tools.

Figure 4.4 Information Panel complementing the thematic display

(Photograph by M. Bige Varlıer)

4.3.3 Environmental Presentation: This mode is a large-scale exhibit used to recreate an event or an atmosphere in time and place. The environmental approach will be used in the 3D 1/1 scaled models showing different typologies of houses in a chronological order. Unlike the current models, the new models will be open for children so that they can enter the houses and hold the kitchenware and other items to feel the materials.

4.3.4 Interactive Presentation: This mode will also be part of the exhibition strategy, complementing the context with multimedia technology, using sound and visuals; as the name suggests this mode encourages visitors to interact with objects.

4.3.5 Hands-on Exhibit: This mode will be the centerpiece of the exhibitions allowing the visitors to feel the materials through the use of replicas. This attitude not only encourages children to touch the objects and feel the materials, but also by doing so makes them realize that museums do not have to be strict and rigid places; they can feel comfortable even in a museum. Hands-on experience is one of the most important attributes of museums that encourage the visitors to get actively involved in the museum experience through physical exploration (Caulton, 1998; 2).

4.4 Label Evaluation[2]

Museums communicate with visitors through labels and based on assumptions: visitors assume that the information on the labels and information panels are correct, while staff members think that the visitors will read and understand the labels and, even more, be interested in what they have to say (Punt, 1989; 9), but this is not always the case. Therefore, labels need to be evaluated to avoid misinforming the visitors. The most important elements to consider for labels are: the word limits, type, size and color, placement, writing and tone (Lord and Lord, 1997; 102). The criteria for label evaluation are defined by Barbara Punt in *Doing it Right: A Workbook for Improving Exhibit Labels* which will be the guide for this part of the thesis.

In museums, there is the constant problem of attracting the attention of the visitors and keeping it long enough to make them interested; some museum workers believe that this problem can actually be solved with the appropriate use of the right labels, concerning the size, information load, and the placement of the label (Abbey, 1967; 30). Short words and short sentences are easier to read; the following chart can be used for evaluating labels and information panels (Table 4.1):

[2] For the evaluation of the current labels, in Chapter 7, and writing new ones, we need to know the types and functions of certain labels. See Punt, Barbara. *Doing it right: A Workbook for Improving Exhibit Labels Brooklyn Children's Museum*. NY.1989. Print. pp. 38. and Screven, C. G. "Exhibitions and Information Centers: Some Principals and Approaches". Curator 29.2. (1986): 109-37. pp.125.

Exhibit Element	Word Length	Type Size
Main Titles: Identifiers	3 – 8 words	To be sized as appropriate for the size of the exhibit unit and the context of viewing. 5 – 7.5 cm is often used as standard
Subtitles: Level 1 – Key points	10 – 25 words	100 – 120 point. This is usually the most important written information in the display
Group Texts: Level 2 – Explanatory text	50 – 60 words	30 – 40 point. This text usually explains why the key point is important or describes a group of objects in an exhibit
Detail Text: Level 3 – Discussion	60 – 80 words	24 – 32 point. This text explores the argument and implications of what is presented in an exhibit
Artifact Text: Level 4 – Individual items	10 – 20 words	18 – 22 point. These words present information on specific objects on display. They may be on individual or group labels

Table 4.1 Table showing the appropriate formatting for labels and information panels (Spencer, 2001; 398)

Label evaluation[3] starts with defining the intended audience, which has already been stated in the mission statement of the Children's Museum: the audience consists of children aged between 6 and 11. The second step is to define what is to be communicated through the labels; with that decision made, the last step for the refurbishment process will be to decide who will write, edit, design and place the labels (Punt, 1989; 40). The label evaluation does not end with the refurbishment process since they still need to be evaluated and tested with surveys.

[3] A sample label evaluation sheet can be found in Punt, Barbara. *Doing it right: A Workbook for Improving Exhibit Labels Brooklyn Children's Museum*. NY.1989. Print. pp. 14.

The character of the institution plays an important role in the process of writing the labels (Punt, 1989; 18), and labels should fit the museum profile (Punt, 1989; 30). Label-writing is a complex task; therefore, it is essential for the responsible party to have a good understanding of the exhibition material and the museum audience (Punt, 1989; 40). The success of the label can be determined by measuring its attracting and holding power – whether people stop to read the label and take some time to process it or not – and finally by measuring the effective transfer of information, which can be obtained from open-end worksheets (Punt, 1989; 48-51).

4.5 The New Approach

Didactic education and discovery learning are both important aspects of museum education, intertwined in the museum environment. History museums generally use a chronological order (Hein and Alexander, 1998; 40). In the Children's Museum, as an archaeology museum, the objects will be arranged chronologically with respect to their location of origin. The sequentially arranged exhibitions with didactic labels and texts present the information to be interpreted; these can also be supported with stimulus-response methods such as asking a question to the audience through the label, using answer buttons, and computer

screens that encourage interaction and involvement (Hein and Alexander, 1998; 40) and create a mental interaction.

The museums' approach for active learning, which consists of finding out for yourself and learning through doing, is important for interactive exhibits that engage, challenge and stimulate visitors, allowing exploration (Hein and Alexander, 1998; 42). In the Children's Museum, hands-on will be incorporated within the exhibitions and in galleries, utilizing a mixed range of interpretative media (Caulton, 1998; 1), since "museums value objects and learning from objects" (Hein and Alexander, 1998; 41).

Education and learning takes place everywhere and is a life-long process; therefore, with the interaction of disciplines, museums can be self-sufficient, educational, activity-based and informal learning places as well as a complementary system for formal education such as schools.

The major problem in formal education methods is the lack of contextualization of educational materials, activities and environments which presents museums with an opportunity for claiming a leadership role in affecting quality learning practices (Falk and Dierking, 2000; 227). The current and restricted education system results in more "What?" questions rather than "Why?" or "How?" questions (Paykoç and Baykal, 2000; 102) that encourage the children to think and make their own inferences. The formal school education systems are based on the

imparting of theoretical knowledge and fail to teach through experimentation, creativity and group activities; therefore, museums can provide an alternative or parallel education system to the formal school system (Adıgüzel, 2000; 130-131). The education programs and especially the themed exhibits of museums should be consistent with the elementary school curriculum (Balkan; 1) considering the mutual relationship between museums and schools. Another important outcome of school field trips is the social interaction; therefore, students gain much from these museum visits.

The "transfer of information" can be achieved with various techniques, three of which have proven to apply to all audiences:

1. direct interaction where the children are encouraged to express themselves;

2. encouraging the children to express their feelings about an object or an exhibit;

3. connecting the audiences with the environment – making the children realize that the museum objects can be related to their everyday lives (Dean and Edson, 1996; 196).

"Museum education is centrally concerned with teaching from and learning with objects and specimens" (Hooper-Greenhill, 1996; 234); therefore, Hooper-Greenhill suggests a methodological approach in which children can relate the

objects to things they know or own and place them in a context (figures 4.5 and 4.6) (Hooper-Greenhill, 1996; 232).

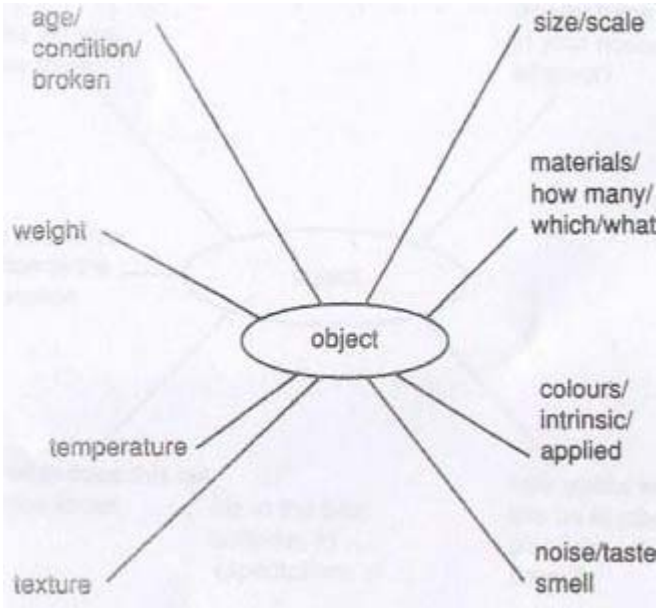


Figure 4.5 Sensory exploration (Hooper-Greenhill, 1996; 234)

Teaching with collections and asking children to make their own collections and exhibits help them develop vocabulary, questioning and presentation skills (see figure 4.7) (Plourde, 1996; 278). Thus, a flexible exhibition space that might house the exhibits of children should also be designed as part of the Children's Museum.

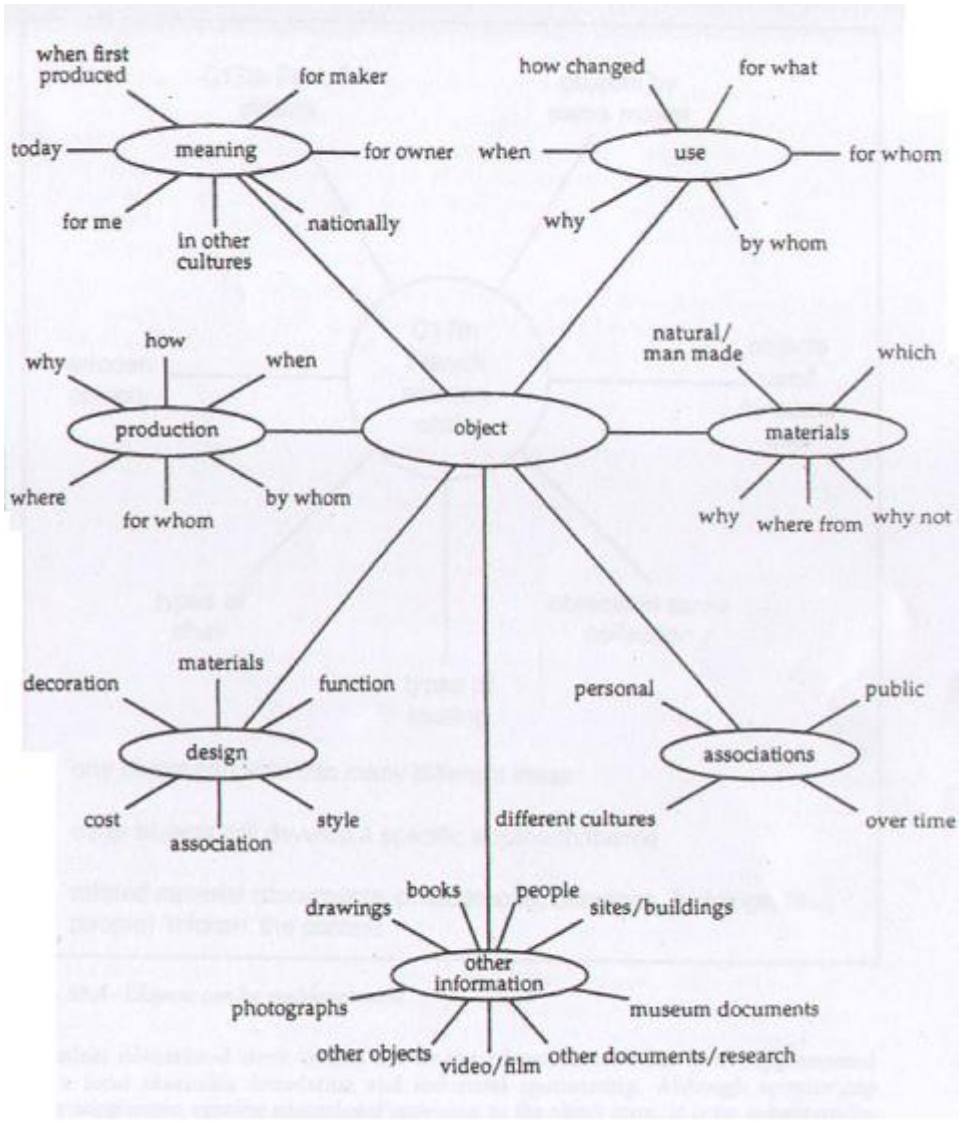


Figure 4.6 Discussion and analysis (Hooper-Greenhill, 1996; 235)

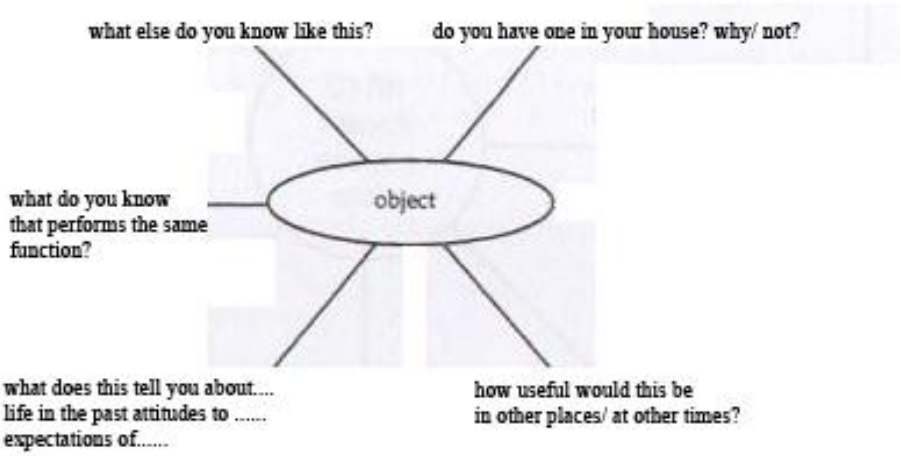


Figure 4.7 Remembering, comparing and synthesizing (Hooper-Greenhill, 1996; 236)

Routine experiences that do not challenge and stimulate the children may not necessarily result in being educative; therefore, the children should be provided not only with hands-on but also minds-on experiences, not only lively, vivid and interesting, but also with programs designed and organized to be educative (Dean, 1998; 2).

Following theoretical considerations for museums, children and children's museums, an analysis about the practical issues also has to include the design tools to create this aesthetic and fun learning environment.

5 MUSEUM DESIGN: PRACTICAL CONSIDERATIONS

> There is no justification for designing an exhibit which is so simple and sterile in its physical aspects that one passes by and grasps in a single glance the full impact and meaning of the display (Abbey, 1968; 32).

How visitors feel and behave, what they see, observe and remember is strongly influenced by the atmosphere of the museum environment and their physical context (Falk and Dierking, 2002; 3). Therefore, the museum experience is dependent on the aesthetic, structural and functional qualities of the space, along with lighting and color and a pleasant overall ambience.

5.1 Elements of Design

The visitors' interest and engagement in the museum and the exhibits is highly dependent on the fulfillment of visitor needs (Hein and Alexander, 1998; 13), which can be satisfied by the appropriate design. To be able to do that, the design elements and principles should be analyzed. Design is a language, and the vocabulary of that language consists of the elements of design, whereas its grammar is formed by the principles of design (figures 5.1 and 5.2), (Kilmer and Kilmer, 1992; 97).

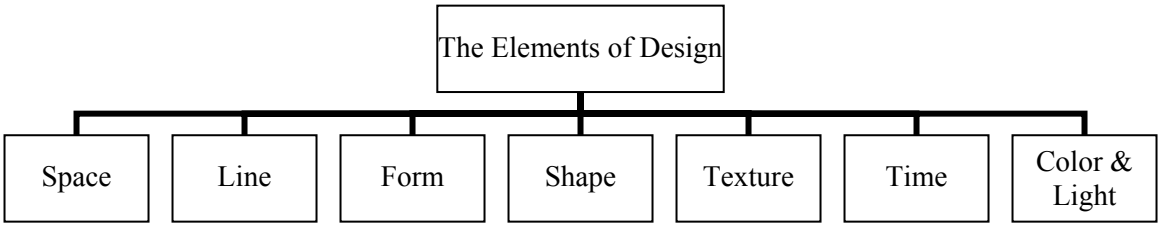


Figure 5.1 Diagram showing the elements of design (Kilmer, 1992; 96)

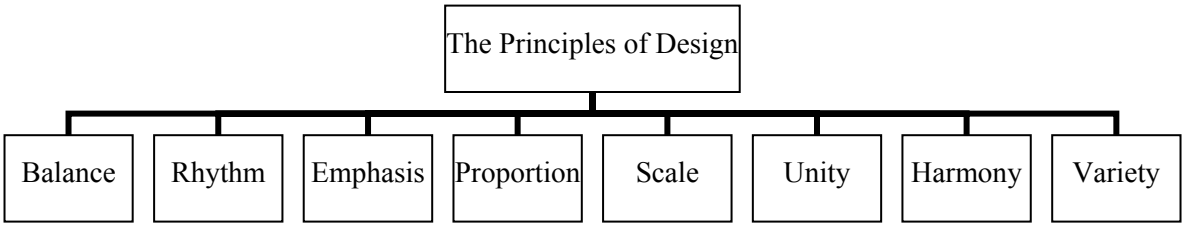


Figure 5.2 Diagram showing the principals of design (Kilmer, 1992; 96)

Space in design is a volume defined a by vertical (columns and walls) and horizontal (floor and ceiling) lines and planes. Line, form and shape are the basic elements of objects and spaces; line has a direction, form has three dimensions and exhibits volume, and shape is the outline or the contours of an object (Kilmer and Kilmer, 1992; 102, 106). The primary shapes are rectilinear, triangular and circular. Objects can create different moods according to their shape, proportion, color and placement within a space (Kilmer and Kilmer, 1992; 107).

Texture is the visual and especially tactile quality given to a surface by the size, shape, arrangement and proportions of the parts. Textural surfaces are

important for acoustical control because of the finishing of the surface: smooth and hard surfaces reflect and magnify sound whereas soft, uneven, rough surfaces will absorb it (Kilmer and Kilmer, 1992; 111). Texture also defines the way a person feels in an environment, smooth surfaces seem "cold" and rough surfaces create a sense of warmth but if used excessively they can also create a feeling of discomfort; it is best to use them in the appropriate amount, creating a visual and tactile contrast between surfaces (Kilmer and Kilmer, 1992; 110).

Time is also a design element as one of the variables; the way a person perceives a space is dependent on time; the time of the day, the time to walk through, or the time to stop, all affect the person's impressions of the space. The space is not static; objects are also affected by time, such as through the corrosion of metals and woods;. therefore it a major factor to consider in the design process.

To create and define the boundaries of spaces, physical or nonphysical spatial concepts are developed (Kilmer and Kilmer, 1992; 99-100). In terms of spatial relationships we talk through enveloped spaces – space within a space, juxtaposed / adjacent spaces – with various interfaces, interlaced or overlapping spaces and transitional spaces, which will be referred to in Chapter 8 to describe the spaces in the new Children's Museum and their relations.

5.2 The Principles of Design[4]

5.2.1 Balance is a state of equilibrium between contrasting, opposing or interacting elements. It is the pleasing and harmonious arrangement or proportion of parts or elements in a design or composition. There are three types of balance in design.

- Symmetrical Balance**:** The arrangement of forms on one side of an imaginary central dividing line, axis or plane, it is the mirror image of the other side such as the human body, many plants and animals in nature.

- Asymmetrical Balance**:** The arrangement of different things of different size, number, shape to bring them to equilibrium through placement. The central pivot point in symmetrical balance moves toward a side (off center). Color, size and number can also be effective to create balance besides placement.

- Radial Symmetry: The arrangement of forms or shapes around a central point, with a large number of axes, as if they seem to radiate from a center.

4 For more information and examples on the elements and principles of design, see Kilmer, Rosemary and Otie W Kilmer. *Designing Interiors*. USA: Jovanich College Publications. 1992. Print. and Pile, John F. *Interior Design*. Harry N. NY: Abrams Inc. Publications, 1988. Print. For the terminology, see Burden, Ernest. *Elements of Architectural Design: A Visual Source*. USA: International Thomson Publishing. 1995. Print.

5.2.2 Rhythm is the repetition of elements, often with defined intervals between them. Rhythm can create a sense of movement, and can establish pattern and texture. There are many different kinds of rhythm, often defined by the feeling it evokes when looking at it.

5.2.3 Emphasis is the stress or prominence given to an element that is more important than others while minor elements look subordinate in design. It is a way to transmit meaning and to ensure the importance of certain elements in design.

5.2.4 Scale refers to the proportion of an object or a space to all other objects. Human scale in architecture is based on the dimensions and proportions of the human body. Mechanical scale is the size or proportion of something relative to an accepted standard or measurement (scale architectural drawings or scale models). Visual scale is the size or proportion an element appears to have relative to other elements of known or assumed size.

5.2.5 Proportion is the relationship of the parts to one another or to the whole; in architecture and interior design, proportion is the relationship of parts contained within the space.

5.2.6 Unity is primarily defined as oneness, the state of being one and the totality of the related parts. Compositions, objects or spaces with unified elements and pieces appear less chaotic and haphazard. Repetition in size, shape, form, pattern, texture and color are used to create unity.

5.2.7 Harmony results from a composition that fits together, and from correct combinations that balance unity and variety. Harmonious designs provide a sense of belonging; but unity and harmony carry the threat of monotony without variety.

5.2.8 Variety can relieve monotony and capture attention by giving the eye a number of different shapes, sizes, texture, colors or other details. Variety should be combined with some degree of harmony and unity otherwise chaos occurs.

Variety can be created with the use of contrast which is the opposition or juxtaposition of different elements in a work of art or space to expose each element's properties. Contrast produces a more dynamic expression. Variety and Contrast are the countervailing qualities of Unity and Harmony.

5.3 Light and Lighting

"Lighting involves space, volume, form, texture, color, impressions and – most of all – people" and therefore is a humane activity that has both physiological and psychological effects (Steffy, 1990; 1).

Lighting is one of the most important aspects of museum design since it defines the way in which an object is perceived and museums – with some exceptions – depend on the objects on display. Museum lighting differs from other display lightings because "the most important thing is to highlight the perception of form, texture and three-dimensionality of the object" (Dikel, 2003; 7). The aim of

locale lighting is to create a pleasant atmosphere and an aesthetic, tasteful space whereas object lighting aims to emphasize and focus on the details (Balkan; 26). Light not only defines the objects but also defines different places in a larger area; perceptions as separate rooms might occur with the use of light even in visually and physically connected spaces (Millet, 1996; 110); or just the opposite: when the rooms are separated physically, they can be connected with the use of light through glass – transparent or translucent – partitions (Millet, 1996; 111).

To maximize the potential of the built environment, comfort and work efficiency, light should be used effectively since different light patterns and colors evoke different feelings and responses and therefore affect the way we feel in these environments (Steffy, 1990; 5). Gary R. Steffy talks about the physiology of lighting in his book *Architectural Lighting Design* and transforms common sense into sentences explaining the process of light adjustment of the eye known as adaptation: "As the eye views from light areas to darker areas, and vice versa, adaptation occurs; so when one is designing interior space adjacencies or exterior site lighting, this adaptation should be considered" (Steffy, 1990; 2).

Lighting design in museums depends on a couple of factors (Naredi-Rainer, 2004; 52):

5.3.1 Visibility: This is the minimum level of illumination required, providing good contrast and color rendering while avoiding glare. The four factors

that determine visibility are: size, contrast, luminance and time; the nearer an object is, the easier it is to see; more contrast means increased visibility, as in black letters on a white background; the greater the luminance (reflected light) is, the easier it is to perceive the objects; and the less light, the longer it takes to see details (Jones, 1989; 9-10).

Exposure to light and lighting are important factors not only for their significant effect on the quality of the space, but also on the preservation of the objects (Naredi-Rainer, 2004; 44). Light energy also has deteriorating effects on the objects (Table 5.1), causing discoloration and signs of aging; therefore, the light amount – increasing the visibility and reducing the object damage – should be balanced, which is suggested to be between 50 to 150 lux (Naredi-Rainer, 2004; 52).

Spectrum Wavelength (nm)	Description	Relative Damage Factor
546	Yellow-green	1
436	Blue	22
405	Blue-violet	60
389	Violet	90
365	Ultraviolet	135

Table 5.1 Table showing the damage factor of light waves (Naredi-Rainer, 2004; 52)

5.3.2 Room and Object Lighting

General lighting is necessary for orientation and sensory perception of space, whereas object lighting focuses on the objects, giving details and emphasizing certain material or tactile qualities of the objects with the use of contrast, light and shadow.

The brightness in the visual field – either directly or reflected from a shiny surface – is called glare and has to be avoided, for it causes discomfort, fatigue and loss of productivity (Jones, 1989; 12). Lighting should be designed in a way that provides the optimum presentation of objects and exhibitions (Naredi-Rainer, 2004; 44) with the limitation of glare and good distribution of luminance.

5.3.3 Distribution and Control of Daylight

Natural light is an important element in design, not only for functional but also for psychological issues, since the mental well-being of the person is affected by the type and color of the lighting in the space (Balkan; 26). Sunlight, as a dynamic source, defines the character of object and adds to the definition of the forms by emphasizing the form with the help of light and shadow contrasts (Burden, 1995; 37). The balance between light and shadow can be used to highlight sculptural forms, defining shape and rhythm, therefore creating harmony of form (Burden, 1995; 37).

Day lighting solutions incorporated into buildings can change the moods of people by creating different luminous environments (Fontoynant, 1999; 80). Movable blinds, the angle of which can be controlled, can be used to avoid the direct entrance of daylight throughout the day, which would result in disturbing effects of glare on display windows and extreme brightness in the museum.

5.3.4 Artificial Lighting[5]

Artificial light is especially preferred for the lighting of exhibits and display items because of the character of the light – it is controllable and adjustable. The luminance of the galleries can be around 200 lux for comfortable perception (Naredi-Rainer, 2004; 56).

The quality of light is important in this space where different types of activities, workshops and displays take place, requiring high concentrations of light in some places and low densities in others; therefore, the advantages of the space should be used delicately to make the most of the light that is already present in the space.

[5] For alternative methods of lighting in museums see; Turner, Janet. *Designing with light: public places: lighting solutions for exhibitions, museums and historic spaces*. NY: Rotovision. 1998. Print.; Kılıç, Hülya. "Çağdaş Aydınlatma Tekniği ve GünümüzMüzeciliği Verilerine Göre Müze Yapıları için Yeni Bir Mimari Yaklaşım." Diss. Yıldız Technical University, 1984. Print. and Dikel, Erhan. "A New Method in Object Lighting: Using Surface Chromaticity Coordinate." Diss. Bilkent University, 2007. Print. for the alternative methods of lighting in museums.

5.4 Color

> Color is not the property of objects, spaces, or surfaces; it is the sensation caused by certain qualities of light that the eye recognizes and the brain interprets. Therefore, light and color are inseparable and, in the design of the human habitat, equal attention must be devoted to their psychological, physiological, visual, aesthetic and technical aspects. (Mahnke, 1996; 2)

The effects of light and color on human beings on a psychological and physiological basis are the main issues to consider while creating the optimum environmental conditions to ensure the physical and mental well-beings of the users of an architectural space; color is a key element in the relationship between human beings and their built environment (Mahnke, 1996; xi). The first reaction to color is always a psychological one, even though it may and probably will lead to physiological reactions. Potential harmful effects of the environment can result in nervousness, headaches, lack of concentration, inefficiency, bad mood, visual disturbances, anxiety, and stress (Mahnke, 1996; 2-3); in most cases, more than one of these affect museum visitors, which arouses an important question about the real cause of these feelings – the answer to which might indeed be the museum environment itself. Therefore, while designing a museum, light and color should not only be seen as a means of illumination, but as a major factor defining the psychological reactions and physiological well-being of the person.

The emotional effect of a space on human beings is defined by color which is a characteristic of objects perceived with light (Jones, 1989; 15). This psychological effect is determined by color temperature. The effects of color depend on the quality, location and level of the light (Table 5.2). Warm and light colors create motivating, intimate, sympathetic and relieving spaces.

	Warm Light Colors	Warm Dark Colors	Cool Light Colors	Cool Dark Colors
From Top ↓	Motivating	Glorious, Distinct	Refreshing, Enlightening	Depressing
From Sides →←	Intimate, Sympathetic	Embracing, Surrounding	Motivating	Cold, Saddening
From Down ↑	Soothing, Relieving	Safe, Protecting	Bright, Encouraging	Disturbing

Table 5.2 Table showing the effects of colors in interior spaces (Neufert, Humans and Color; 39)

Colors affect people; they define spaces, making them appear larger or smaller than they really are (Neufert; 39).

White is the separator, neutralizer color. Warm colors are active and vibrant, they arouse feelings and act as stimulants, whereas cool colors are passive, soothing and calming (Neufert, 2000; 39). Warm, impulsive colors such as (orange, red,

yellow) are good for small spaces, whereas cool colors (such as blue, green, lilac) are good for large spaces (Neufert, 2000; 39).

It is important to use the right colors and materials considering the light reflection and absorption qualities of these finishes (Kilmer and Kilmer, 1992; 416). Aesthetic appeal is also an important factor along with durability and appropriateness for the intended use (Kilmer and Kilmer, 1992; 397).

The interrelationship between the objects and the observer is defined as the consequences of room / general lighting. The quality of the room lighting depends on the proper light distribution on the room surfaces, avoiding glare with the appropriate amount of contrast; the lighter the room surfaces, the better the light distribution (Naredi-Rainer, 2004; 56).

The color of the floor should be darker than the color of the walls for the well-being of the person in a space (Balkan; 33). Different applications can be tried on the floor of the space to create different visual or tactile textures.

5. 5 Technical Services

The interactions of the natural environment with the man-made and built environments bring up issues to consider throughout the design process, such as climatic, acoustical and legal issues and codes of regulations (Kilmer and Kilmer, 1992; 266). Museum-related technical issues include lighting, heating, ventilation,

air-conditioning and security, for example, fire prevention and extinguishing methods (Balkan; 1). Lighting, as one of the most important design elements, has been discussed under that heading, so here I will focus on the remaining issues.

5.5.1 Acoustics[6]

Suspended ceilings are effective for sound insulation.

The floor covering materials are especially important for the sound and heat insulation of the museum.

5.5.2 HVAC (Heating, Ventilation, Air-Conditioning)

The building walls, floors and ceilings should have fire-resistant finishing to protect people, to slow the spread of fire and to keep the building from collapsing (Kilmer and Kilmer, 1992; 277).

The cooling load in a building should be kept at a minimum through the efficient use of solar energy and by keeping the solar energy in the building for winter. To keep the HVAC costs at an economic rate, regenerative measures should be taken such as energy-storing masses, solar protection methods, the use of natural

[6] For the acoustical properties of materials and different uses, see Egan, David M. *Architectural Acoustics*. NY: McGraw-Hill. 1988. Print. and Templeton, Duncan and David Saunders. *Acoustic Design*. London: Architectural Press. 1987. Print.

light, regulating the amount of artificial lighting, and so on. (Naredi-Rainer, 2004; 47).

Regular air-conditioning systems can be used in the galleries to provide ventilation, air exchange, humidification and dehumidification as well as heating and cooling, whereas in the display cabinets newly developed systems reducing the exchange of air to a minimum by providing stationary heating and cooling should be preferred (Naredi-Rainer, 2004; 44).

5.5.3 Security

Security design in museum buildings covers four areas:

- hold-up alarms and burglar detention systems (at exits and central points)
- fire detection and prevention systems[7]
- video surveillance systems
- access control systems (Naredi-Rainer, 2004; 45).

Systems other than fire detention and prevention systems, will be left to the care of the Istanbul Archaeological Museums with the rest of the museum's security; however, for this case study the fire prevention methods and systems have to be

[7] The specifications for fire detection and prevention methods can be found in Sivil Savunma Genel Müdürlüğü. Türkiye Yangından Korunma Yönetmeliği. TUYAK. 2007. The dimensions of the circulation – doorways and passages, and the materials used in the museum – are according to the specifications defined in the regulations.

installed in the halls and galleries of the Children's Museum and, therefore, will be analyzed here.

Smoke and fire detectors are necessary components of the security system for an early warning to the occupants of the museum building in case of fire (Kilmer and Kilmer, 1992; 278).

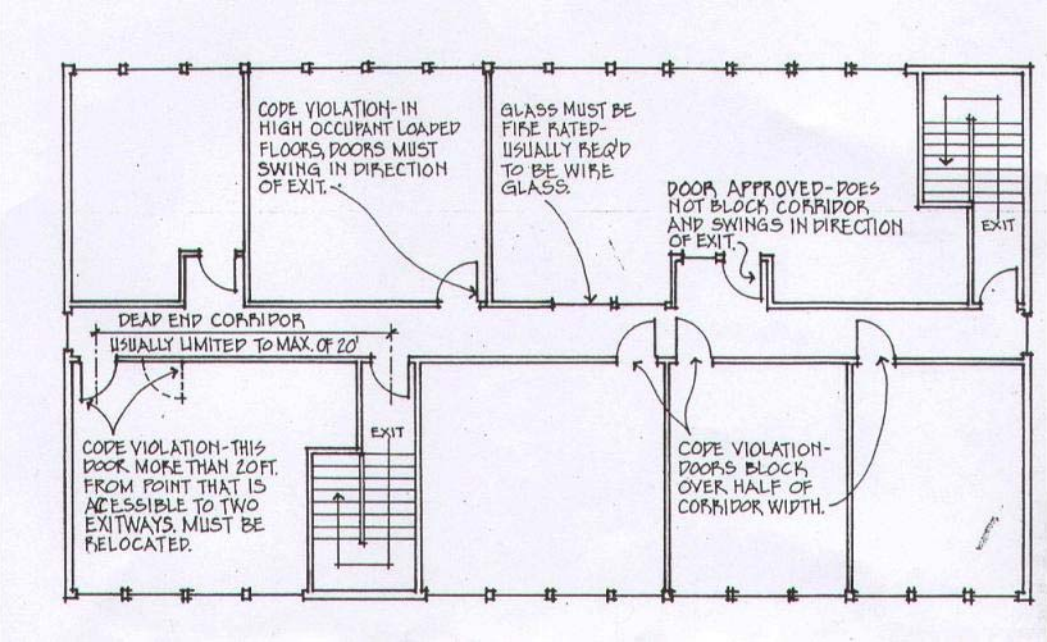


Figure 5.3 Violations of some codes and regulations (Kilmer and Kilmer, 1992; 278)

The fire suppression systems include fire extinguishers, piping and hose cabinets and might be installed in the ceiling as sprinklers that spray water or gases such as carbon dioxide when activated – either by heat or smoke (Kilmer and Kilmer, 1992; 278). For the Children's Museum, gases should be preferred rather

than water, which can cause electric contact in the galleries that use computers and monitors (Naredi-Rainer, 2004; 45). Careful considerations and fire-proof applications have to be adopted, such as fire-rated glass, and the like (see figure 5.3).

Vandalism is more likely to occur in the adult sections of museums, where there are fewer interactions with objects, less thinking and, therefore, drawing fewer inferences which would normally add to the experience (Butler, 1968; 34).

Maintenance cost is an important factors in terms of the technical issues, which in the Children's Museum has to be monitored for the short-term plan to ensure that it is within the estimated budget of the Istanbul Archaeological Museums for the Children's Museum.

5.6 Ergonomics

> Ergonomics is the science of work: of the people who do it and the ways it is done; the tools and equipment they use, the places they work in, and the psychosocial aspects of the working situation (Pheasant, 1986; 4).

Ergonomics is the scientific study of the relationship between people and their working environment. In the case of the Children's Museum, the working environment covers the drawing ateliers, the drama atelier, and the other workshop areas.

Human scale is an important factor for achieving aesthetically proportioned, correct and harmonious spaces (Pheasant, 1986; 7); it is important to scale the building in its heights and lengths according to human proportions, or otherwise it might create discomfort in the occupants, especially in children. Ergonomics help create user-friendly / user-centered spaces (Pheasant, 1986; 12).[8]

5.7 Display and Activities

The displays and activities provoke some relevant points to be considered such as the activity core (micro environments focusing on one activity, such as the drama atelier and the drawing and game areas). Another relevant issue is information overload: too much activity, too many exhibits, too many objects, and too many information panels create the need for a retreat – a getaway from the museum fatigue. It is also necessary to create large and small spaces, since differences in spatial size, always work in favor of the visitor, enriching the space and therefore the experience. Creating focal points – defined either by display or activities – and pools of light help define the space better, and visitors can be guided through the museum with such elements. Outdoor extensions can contribute to the experience by providing a different atmosphere for museum visitors, by

[8] Some basic anthropometric estimates can be found in Pheasant, Stephen. *Bodyspace: Anthropometry, Ergonomics and Design*. 2nd ed. Taylor and Francis: London. 1986. Print. pp. 199-210. These will be taken into consideration while designing the new Children's Museum.

actually creating a whole new additional space. Pools of light can be used to deal with visual fatigue. Paths can create focal points or establish a hierarchy between exhibits, providing circulation and services; paths are a tool for designing a space.

The path is one of the most important aspects of a museum because it forms the structure of the exhibition area, the circulation and transitional spaces, which generate the arrangement and linking of the individual spaces. The circulation in the museums is as important as the form or character of the individual spaces for the quality of the museum experience (Naredi-Rainer, 2004; 40). Paths support the most important feature that makes museums unique: displays and activities, interactions of people and exhibits. This is because what defines the visitor's lasting impression of a museum, in the end, is "the meaningfulness of its exhibits" (Cohen and McMurtry, 1985; 34).

5.8 Accessibility and Universal Design[9]

Safety and comfort are important elements to consider in the design process, and these should be applicable to everyone who visits the Children's Museum. Children need special safety considerations and precautions when compared to

[9] The elements of Universal Design can be found in the website for the Center of Universal Design NCSU: <http://www.design.ncsu.edu/cud/pubs_p/pudfiletoc.htm> or Story, Molly Follette, et. al. *The Universal Design File: Designing for People of All Ages and Abilities*. The Center for Universal Design. 1998. Print.

adults (Pile, 1988; 432). The floor covering materials will have to be slip-resistant. Wheelchair access will be provided to all spaces in the Children's Museum as well as appropriate spacing for wheelchair maneuvering. Good lighting conditions will be provided for everyone, including the visually-impaired. The slope of the ramps within the Children's Museum will be within the limits for wheelchair usage (between 6% and 12%). The handrails of ramps and of areas created by level differences are also important to avoid children to fall and hurt themselves.

An elevator will be provided for accessing the second floor of the Children's Museum, since the 4.5 m height is a long distance to cover by ramps. The elevator will be placed right next to the staircase so that disabled people will not feel segregated. Sharp corners are avoided in the Children's Museum for the safety of children. The widths of the doorways will be appropriate for usage even in case of an emergency.

PART 2: CASE STUDY

6 THE CHILDREN'S MUSEUM IN THE ISTANBUL ARCHAEOLOGICAL MUSEUMS

The Istanbul Archaeological Museums are located in the Sultanahmet area in the Eminönü district, on the Osman Hamdi Bey hill to the right of the Gülhane Park entrance and in the first courtyard of the Topkapı Palace (figures 6.1 and 6.2).

Figures 6.1 – 6.2 Map showing the location of the Istanbul Archaeological Museums (Images from Google Earth)

The museum complex is run by the Turkish Ministry of Culture; General Directorate of Monuments and Museums. The Istanbul Archaeological Museums consist of three parts:

- The Archaeology Museum
- The Museum of the Ancient Orient
- The Tiled Kiosk Museum

Given the fact that it houses the Children's Museum, only the Archaeology Museum will be taken into consideration in this case study. The Archaeology Museum consists of two separate buildings: the old-main building and the new addition, which was built right behind the original building as an extension.

The construction of the classical building was started in 1881 by Osman Hamdi Bey, and the museum was opened to the public on June 13, 1891, as the first museum, under the name of Müze-i Hümayun (the Imperial Museum). The architect of the museum was Alexandre Vallaury. The museum façade was inspired by the Sarcophagus of Mourning Women[10] (figure 6.4), and the architecture of the sarcophagus is repeated on the exterior of the original building (figure 6.3) (Pasinli,

[10] The sarcophagus of Mourning Women is an Hellenistic sarcophagus believed to belong to the last king of Sidon, who died in 360 BC. (http://www.kultur.gov.tr/TR/BelgeGoster.aspx?F6E10F8892433CFFA79D6F5E6C1B43FF46574CE98544FC74) For more information see, Pasinli, Alpay. *Istanbul Archaeological Museums*. Istanbul: A Turizm Yayınları. 2005. Print.

2005; 80). When the need for exhibition spaces grew, the left and right wings were added to the main building in 1902 and 1908 (Atik, 1996; 54).

Figure 6.3 Façade of the Istanbul Archaeological Museum (Photograph by M. Bige Varlıer)

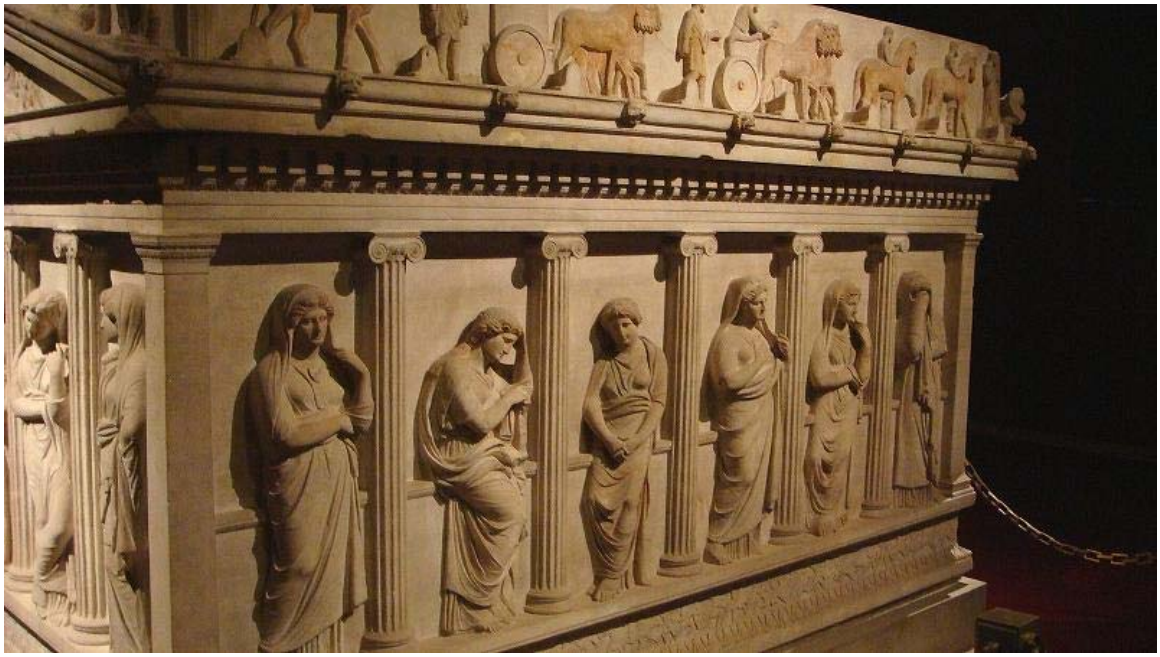


Figure 6.4 The Sarcophagus of Mourning Women (http://picasaweb.google.com/berkeleylions/TurkeySlideShow02#5155402383589175042)

The second building of the Archaeology Museum is the new building attached to the southeastern side of the classical building. This building consists of four storeys of exhibition areas and two storeys of depots, each floor being 1000m². The construction of the building started in 1968 and lasted until 1983, and it was finally opened to the public in 1995 (see figures 6.5 and 6.6 for the floor plans of the classical and the additional building). This is the building that houses the Children's Museum. The architect of the building is anonymous; the project was

supervised by the Ministry of Tourism and Culture, the Directorate General for Cultural Heritage and Museums, Istanbul Directorate of Surveying and Monuments.

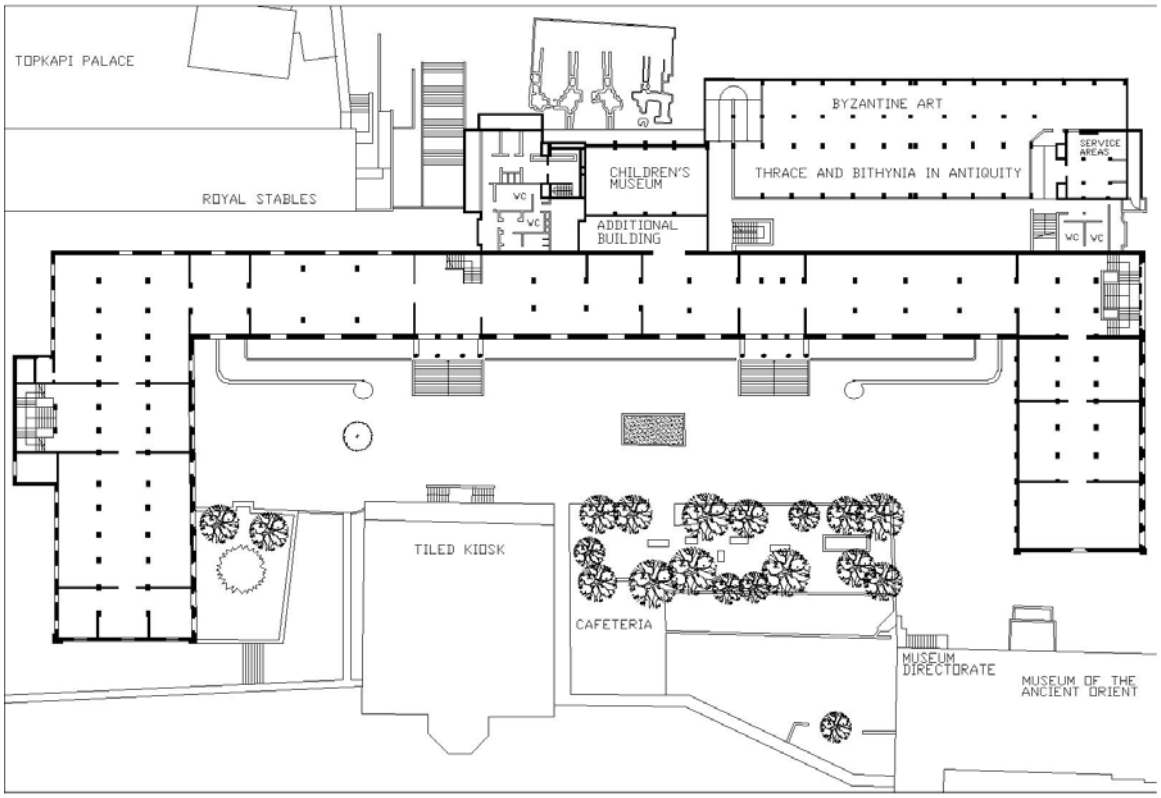


Figure 6.5 Ground floor plan of the Istanbul Archaeological Museums

(Drawing M. Bige Varlıer, Plan: courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

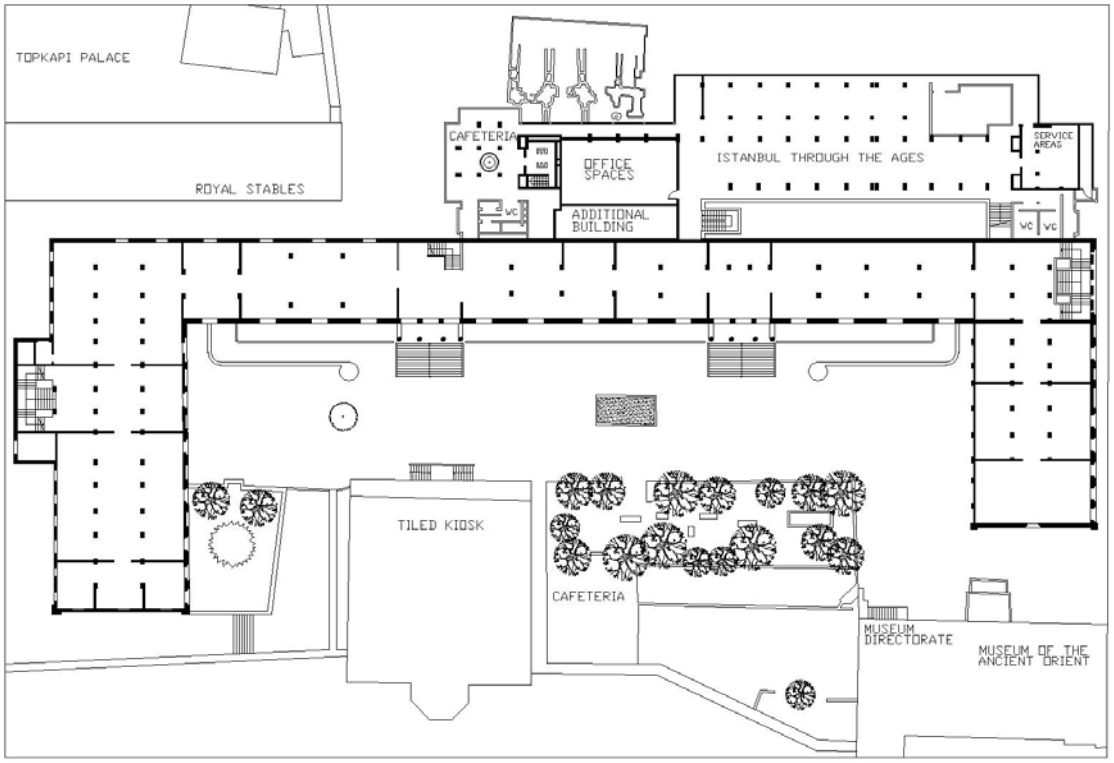
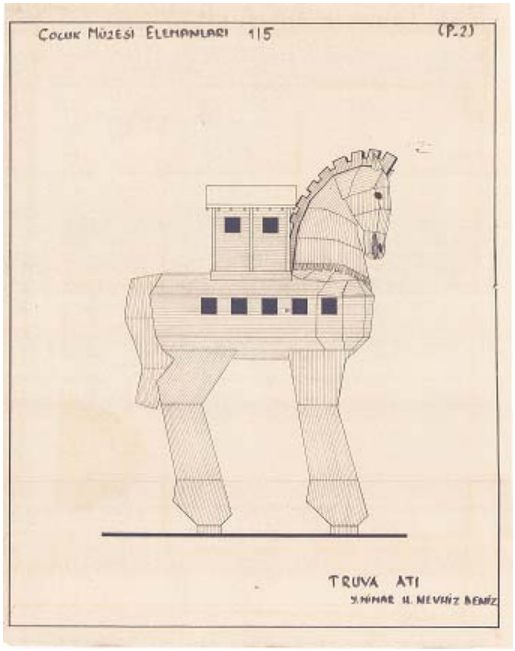


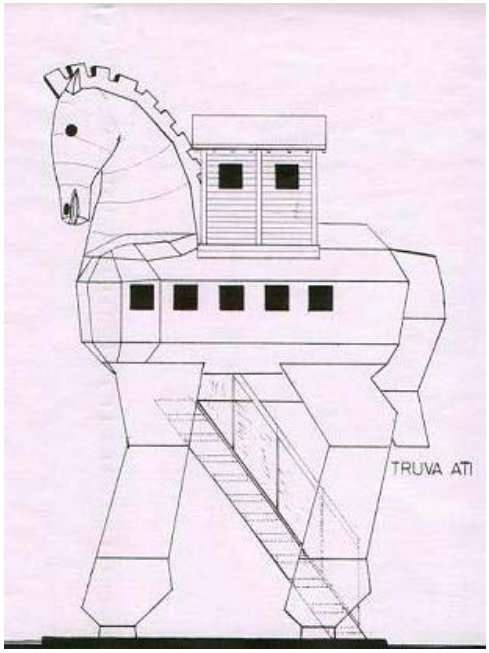
Figure 6.6 First floor plan of the Istanbul Archaeological Museums

(Drawing by M. Bige Varlıer, Plan: courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

The Children's Museum is located in the additional building; one enters from the main entrance of the classical building and turns right from the cloakroom. The gigantic Trojan horse, marking the atrium in front of the Children's Museum, takes everyone's attention. The Trojan horse was designed as part of the

refurbishment of the museum (figures 6.7 and 6.8) – adding the Children's Museum to the empty alley – that lasted from 1992 to 1995.





Figures 6.7 – 6.8 Drafts of the Trojan horse in the atrium

(Drawings by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

The Children's Museum was opened to the public in 1995, but this was almost an incidental event; when the additional building was designed, there was no intention of constructing a children's museum. When there was a large empty place in the museum, this space was decided to be used as a children's museum, since

education in museums was a current issue at the time. The Children's Museum was the idea of the museum staff, and it was designed by Nevhiz Koyukan from the Directorate General for Cultural Heritage and Museums, Istanbul Directorate of Surveying and Monuments. The project was again carried out by the Ministry of Tourism and Culture, Directorate General for Cultural Heritage and Museums, Istanbul Directorate of Surveying and Monuments (see figures 6.9 and 6.10 for the floor and gallery plans of the Children's Museum). The Children's Museum was designed for children between the ages of 7 and 13.

Nevhiz Koyukan and the rest of the design team worked in cooperation with Fatma Yıldız, a specialist in Hittite studies, from the Istanbul Archaeological Museums as the museum representative.

The Children's Museum houses items ranging from the Bronze Age to the Byzantine period (fourth century AD). The Children's Museum aims to display items showing the origins of everyday objects, and for this purpose the Children's Museum displays items relevant to children, such as coins and notebooks. The topics included in the exhibits are: the production and usage of ceramics, weaving, sports, theater, coins, seals, and writing and its evolution from cuneiform to the current Latin alphabet (Atik, 1996; 74). In the Children's Museum, there are 156 artifacts, including the two models at the entrance and three small-scale models in

the hall, the two statues at the entrance of the castle, 61 figurines from different ages, and 46 clay tablets.

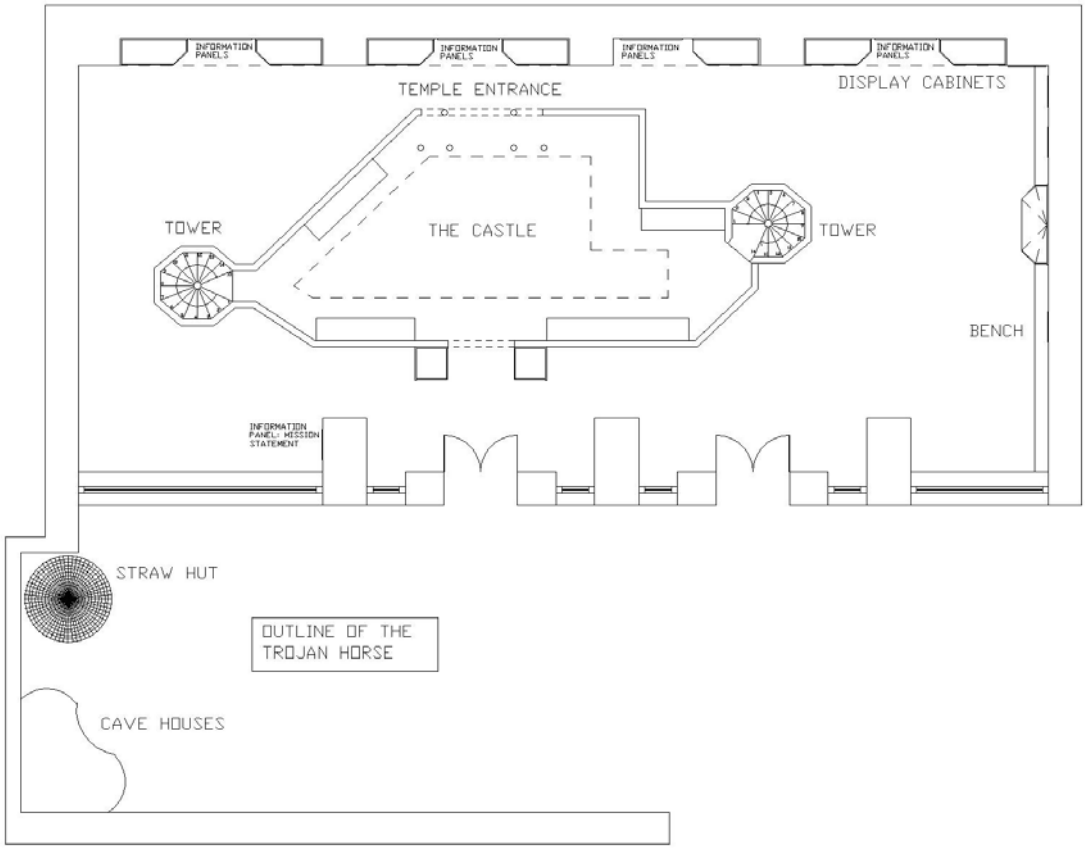


Figure 6.9 Ground floor plan of the current Children's Museum (Drawing by M. Bige Varlıer)

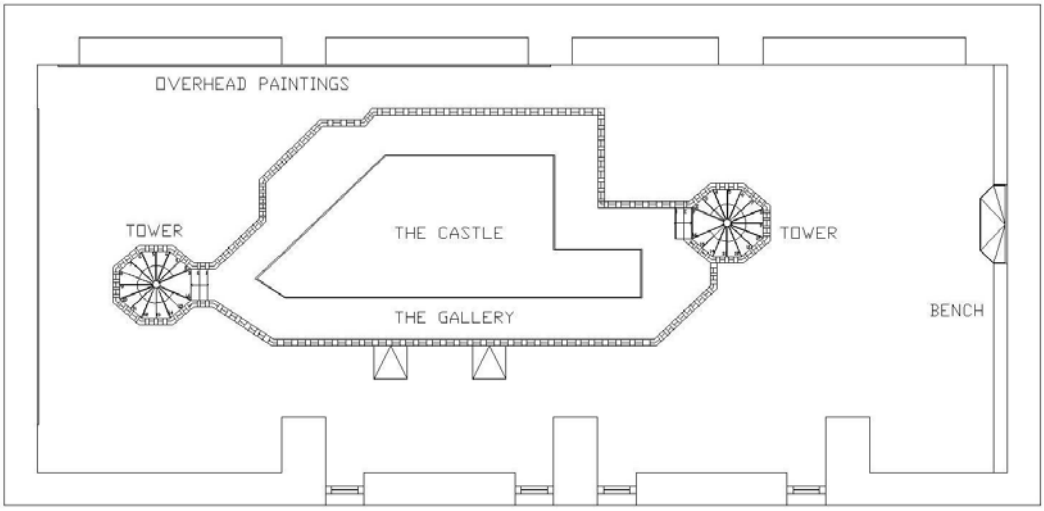


Figure 6.10 Gallery floor plan of the current Children's Museum (Drawing by M. Bige Varlıer)

Fatma Yıldız has thought of the following Chinese proverb as the starting point for museum education: 'I hear and I forget; I see and I remember; I do and I understand' (Atik, 1996; 73). In order to make such an approach possible, the museum was designed as an atelier intended to provide children with tools such as display items, 3D models, one-to-one 3D models, and suggestions for different workshops. Although different types of workshops were originally planned, today the only activity that takes place in the museum is drawing and painting. The original design of the museum was differed from the applied design in the Children's Museum today (figures 6.11 and 6.12). In the first plan, the suggested activities in the hall were varied, though the lack of space was a complication then.

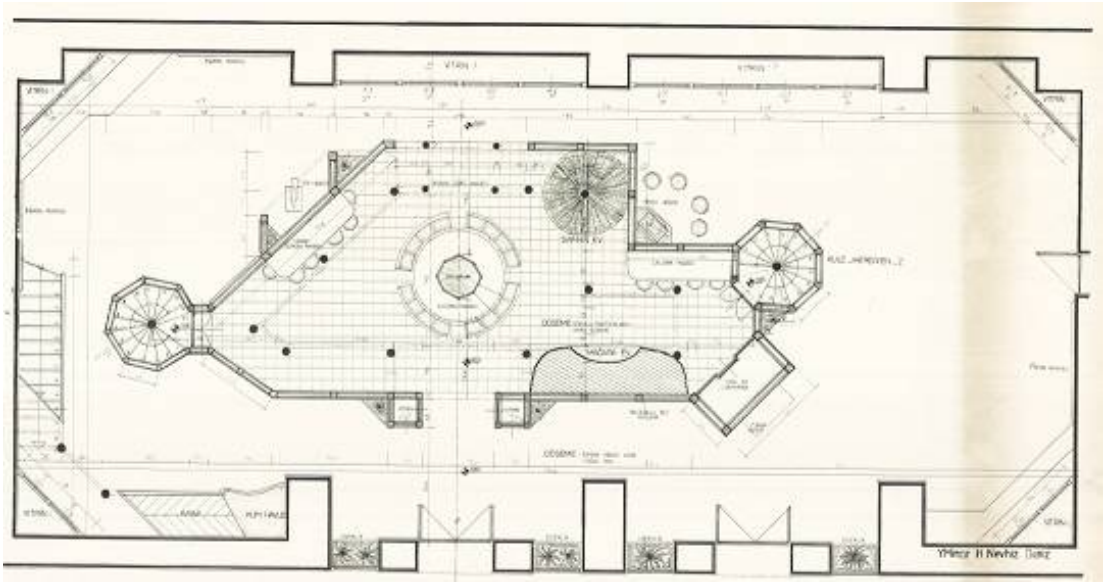


Figure 6.11 The proposed plan of the Children's Museum – Entrance Floor Plan (Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

All three-dimensional models, one-to-one and small-scale, were made by an archaeologist; the cave and early house models were planned to be inside the hall, but they would have occupied a large space, so it was later decided to place them at the entrance.

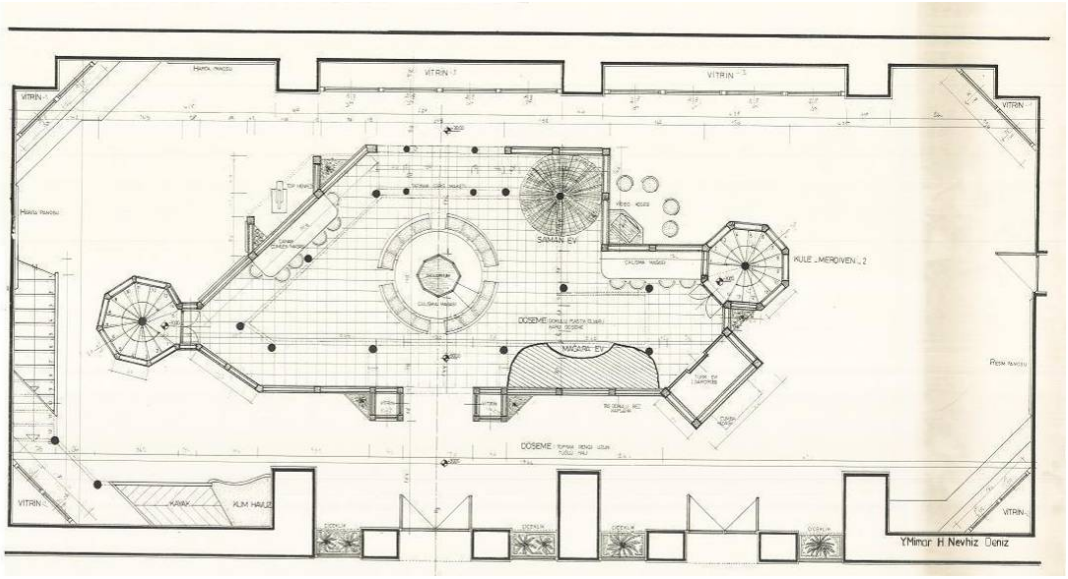


Figure 6.12 The study drafts of the Children's Museum – The gallery floor (Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

In the original design, there was supposed to be an aquarium at the center of the Children's Museum and a balloon, shaped like a globe, symbolizing the world, and the ceiling was to stand for the universe (figure 6.13).

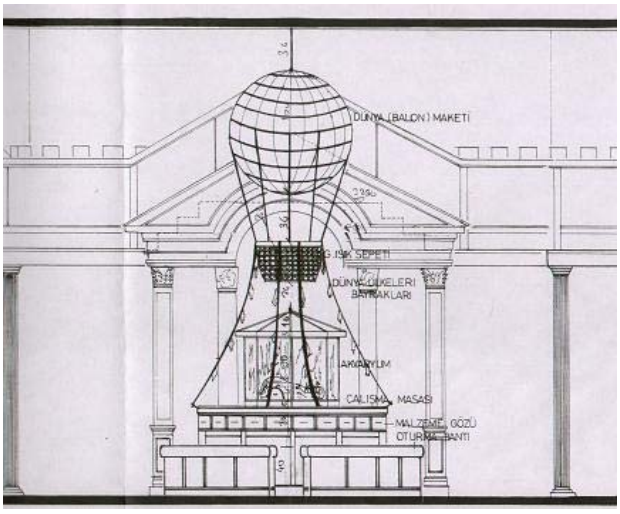


Figure 6.13 The globe over the aquarium

(Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

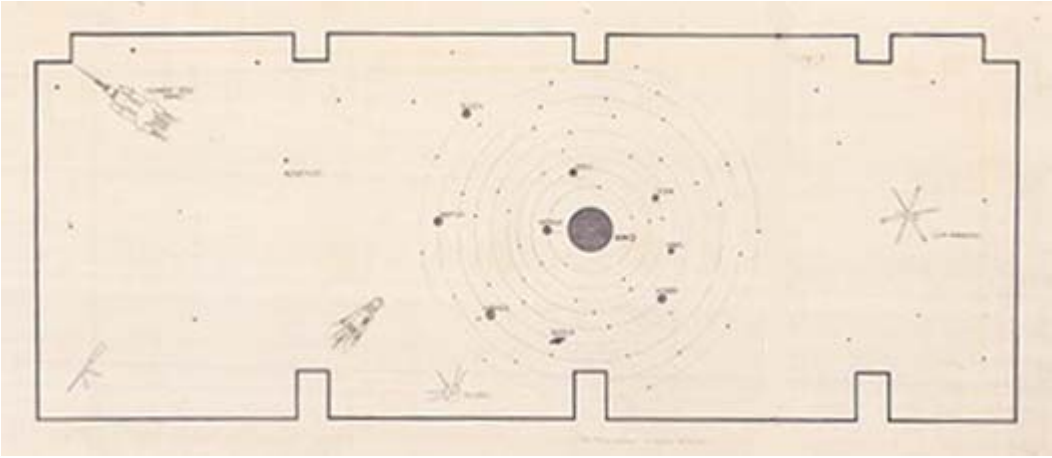


Figure 6.14 Reflected Ceiling Plan

(Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

The ceiling with its solar system and spaceships was applied and still can be seen in the museum, though much faded due to the lack of maintenance (figure 6.14).

Figure 6.15 A view of the centerpiece: the castle (Photograph by M. Bige Varlıer)

The centerpiece of the museum is a castle that resembles the city walls of Istanbul – Constantinople (figure 6.15). However, the interview with the designer, Nevhiz Koyukan, revealed that the castle was not intended to resemble anything since it did not carry a specific idea, but was to serve as a way of enlarging the space and increasing the area. The hall is rather small and at the time it was thought that adding different viewpoints to the space (looking down or upwards) would help

to enrich the experience. This might have actually worked in a better developed plan. The stair wells are also used to hang pictures to make as much use of the space as possible (figures 6.16 and 6.17).

Figures 6.16 – 6.17 The interior of the stair wells (Photographs by M. Bige Varlıer)

The pictures hung in the stair wells tell stories about underwater archaeology, but there are no explanations on labels or information panels, so they only act as decoration. The first picture (figure 6.18) shows a ship crashing in a storm, while in the second picture (figure 6.19) a team is seen at an underwater archaeological site. In the last picture (figure 6.20), the archaeological finds are transported to the surface of the sea with the help of balloons.

Figure 6.18 – 6.19 – 6.20 The interior of the stair wells – the story of the illustrations (Photographs by M. Bige Varlıer)

This story might make sense, if it was either explained on labels or told and described by a guide or instructor, but the pictures are located in a tight spot that makes this highly impossible. Thus, the poor location deprives the pictures of prolonged attention.

The drawings on the walls showing the evolution theory (figure 6. 21) as well as sceneries from the Neolithic age, were drawn by graphic artists. The information panels and the labels were written by the curators of the Istanbul Archaeological Museums. Every curator wrote the section relevant to their collections; for instance, Fatma Yıldız wrote the panels on the Hitite tablets and the tablet labels.

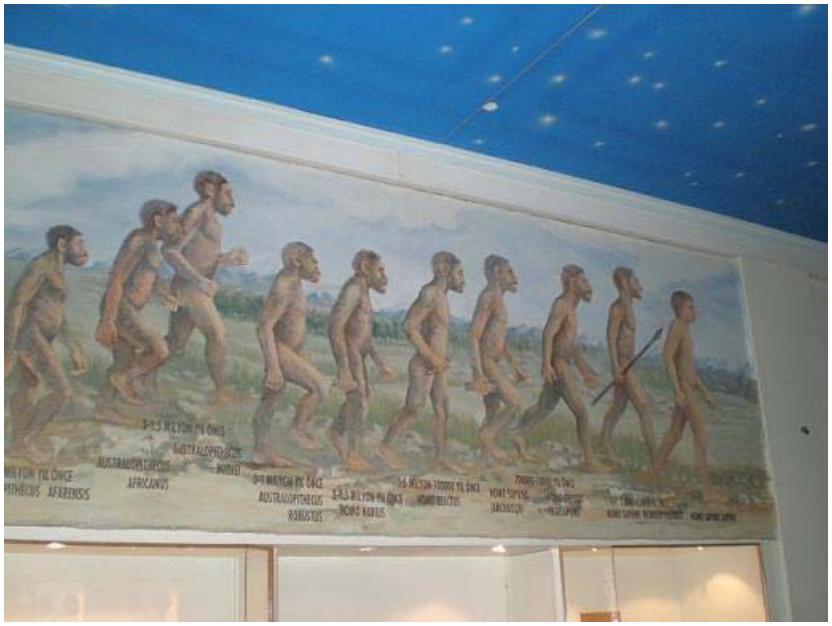


Figure 6.21 Drawing showing the Evolution Theory (Photograph by M. Bige Varlıer)

The statues in the display cabinets are considered to symbolize two guards at the entrance of the castle (figures 6.22 and 6.23). The display cases of the guards were designed similar to the display cases on the second floor of the museum to create a visual resemblance. However, this is not working at all, since it is impossible to create a visual connection between the floors. Here, on the other hand, a strong bond could have been created between the two cabinets at the entrance and the rest of the display cabinets in the Children's Museum. They have a visual connection, and unity could have been achieved with the correct approach.

Figures 6.22 – 6.23 Displayed items (Photographs by M. Bige Varlıer)

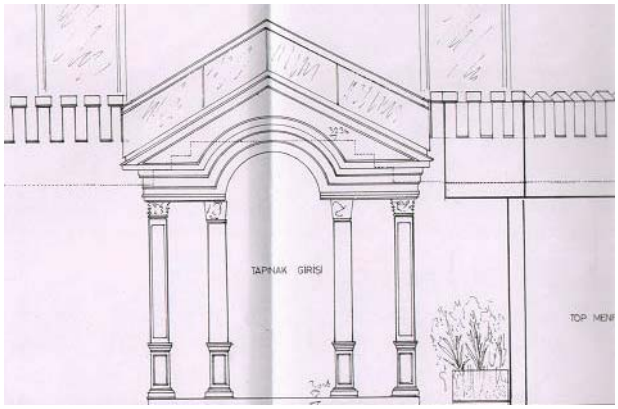


Figure 6.24 The entrance of the temple

(Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

The entrance to the castle from the other side looks like a temple entrance, influenced by the Temple of Hadrian in Ephesus (figure 6.26).

There was also a Turkish house planned for the Children's Museum, to be used as a closet for keeping the children's drawings and crafts (figures 6.24 and 6. 25), but following the later design decisions it seemed irrelevant and out of context, and so it was omitted.

Figure 6.25 – 6.26 The Turkish house

(Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

On the right side of the entrance inside the Children's Museum, there were to be cushions so that children could lie down or sit on them while they played with

dough to make figurines, statues, and stamps, but this area was problematic due to the lack of space and so it was eliminated during the construction process.

On the left side of the entrance, there was to be an area serving as a playground with a slide (see figure 6.27 for the plan and 6.28 for the elevation). Climbing up the stairs would have led to a display cabinet on a higher level, and the way back over the slide would have ended in a small pool of sand. This is another discarded plan since it would have created a high need of maintenance and cleaning and would also have segregated the physically-impaired.

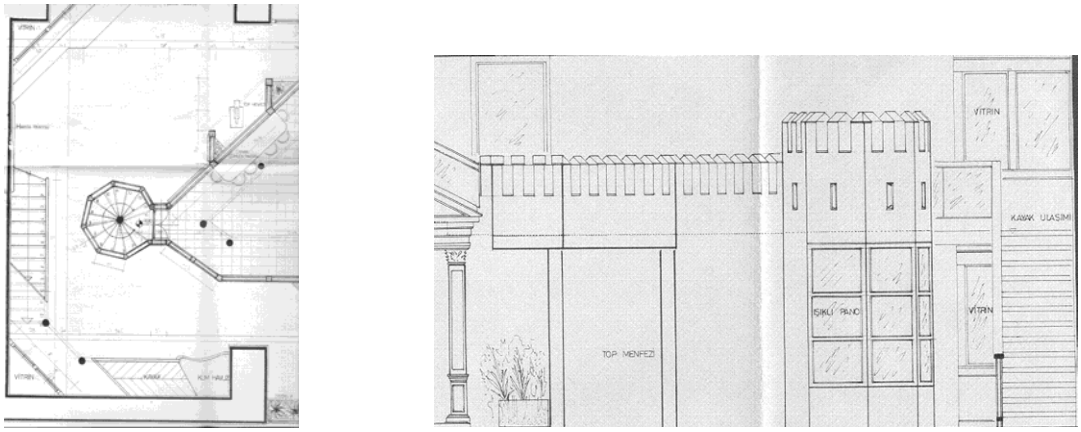
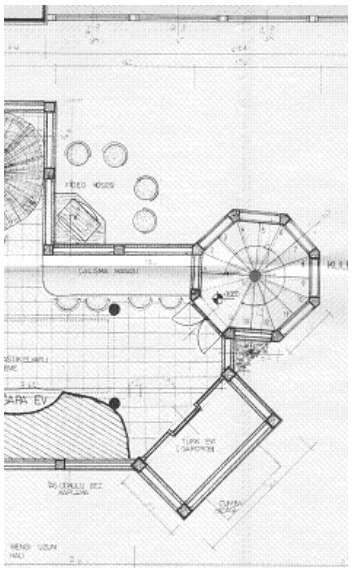


Figure 6.27 – 6.28 The slide and the display cabinet on plan and section
(Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

On the left side of the entrance to the temple, there used to be a television for watching movies and documentaries (see figure 6.29 for plan and 6.30 for

elevation). With the decreasing number of visitors, the TV was removed from its place (it may be debated whether the museum started to malfunction before such actions were taken, or if these actions were the actual cause of the museum's loss of visitors). The museum was also planning to exhibit the drawings and handcrafts of the children in the atrium, in front of the Children's Museum. This plan that would have made children enthusiastic about the museum experience was also cancelled.[11]



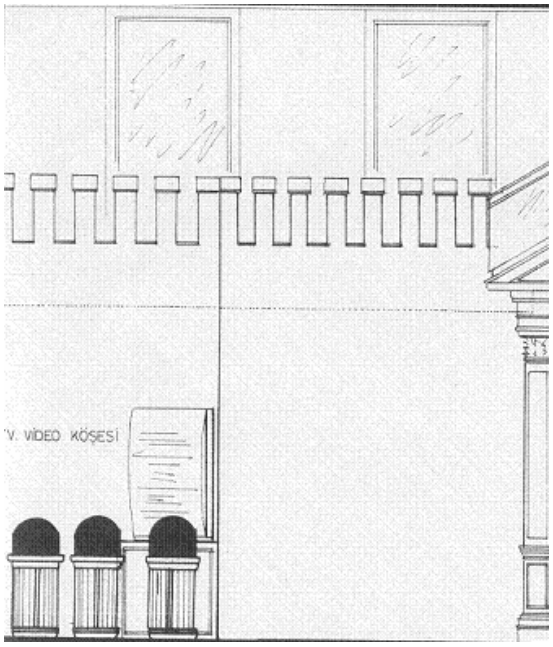


Figure 6.29 – 6.30 The suggested placement of the TV area on plan and section (Drawing by Nevhiz Koyukan, courtesy of the Directorate General for Cultural Heritage and Museums; Istanbul Directorate of Surveying and Monuments)

[11] Based on my interview with Nevhiz Koyukan.

Today, the Archaeological Museum is trying to contribute to children and museum education with the Student-Museum Days conducted by the Yıldız Technical University with the help of Mine Kiraz from the museum. Student-Museum Days require the contribution of the teacher of the school group; teachers learn about the program and prepare workshops and games specific for their students, selecting from the instructor's package for the Student-Museum Days. The day starts with a basic tour of the museum, followed by a workshop in the Children's Museum, used as the workshop atelier. The tour is guided by a volunteer from TEGV, accompanied by the school teacher and museum employees if requested. This guided tour is a promising start, but it still needs to be improved. As the Children's Museum is improved, this package should be improved accordingly, by offering more workshops, games and challenging experiences. School groups are accepted from October to December and from March to May, until the end of the Museums Week (18-24 May). The program is specifically for public schools in Istanbul, but private schools are welcome to visit the museums of their own accord. The program can cover between thirty to forty schools annually. At this stage, an overall evaluation of the Children's Museum will be enlightening for further studies and design proposals.

7 THE CHILDREN'S MUSEUM TODAY: AN EVALUATION

The Children's Museum has some positive attributes along with more problematic issues; thus, an assessment will give an idea about the current situation of the museum, which will form the basis of this case study. Here, I have used Uriel Cohen and Ruth McMurtry's book *Museums and Children: A Design Guide* as a guide to provide the criteria of my assessments. I have used the issues stated in this book as a checklist, starting with the four significant elements in the museum environment: image, path, display and activities. These issues are analyzed based on the current situation of the Children's Museum in order to provide a better design solution for further practical applications.

The image of the museum in society is somewhat problematic; even though the museum has been awarded the European Council Award in 1991, still the Istanbul Archaeological Museums are not the kind of museum that serves as a preferred location for a family weekend trip. Rather, it is a culture-tourism stop in the old city. One of the challenges is to increase the knowledge and visibility of the children's section of the museum among Istanbul residents. The Children's Museum has not yet established an identity of its own to the community and the children. The refurbishment of the Children's Museum can be a good way to achieve this goal.

The right location is an important factor in the visibility of the museum. In this case the Istanbul Archaeological Museums also have a great advantage, since they are located in the vicinity of the Topkapı Palace Museum. Based on the number of visitors, the Topkapı Palace Museum is a rather popular museum as shown in Tables 7.1 and 7.2.

Months	Paid	Museum Card	Free of Charge	Total Number of Visitors	Total Cash YTL
January	8.021		3.595	11.616	40.105
February	5.395		1.445	7.380	29.675
March	11.009		6.487	17.496	55.045
April	11.262		11.067	22.329	56.310
May	11.947		19895	31.842	59.735
June	9.183		14.217	23.400	45.915
July	13.805	623	7.789	22.230	80.965
August	14.054	2.852	3.643	20.549	181.388
September	10.990	1.940	3.020	15.950	137.768
October	13.848	3.584	4.933	22.365	174.198
November	8.316	1.848	2.420	12.584	107.152
December	7.224	1.560	2.361	11.145	93.860
Total	110.054	9.012	76.091	195.157	861.104

Table 7.1 Table showing the visitor numbers and annual income for the Istanbul Archaeological Museums in 2008 (The free of charge number also gives a general idea about the number of students) (From the archives of the Istanbul Archaeological Museums).

Months	Paid	Museum Card	Free of Charge	Total Number of Visitors	Total Cash YTL
January	59.554		32.506	92.060	597.530
February	63.031		29.854	95.885	631.010
March	137.875		56.236	194.111	1.381.360
April	138.010		85.134	223.144	1.384.380
May	185.610		142.896	328.506	1.859.090
June	143.653	13.260	61.265	204.918	1.458.260
July	193.264	43.500	68.864	262.128	1.956.235
August	179.930	157.180	35.411	215.341	3.335.745
September	144.600	149.868	30.178	174.778	2.628.808
October	127.375	101.924	27.986	155.371	2.331.094
November	87.324	106.960	31.947	119.271	1.592.165
December	74.363	87.588	22.128	96.491	1.366.098
Total	1.534.589	660.280	624.415	2.159.004	20.521.775

Table 7.2 Table showing the visitor numbers and annual income for the Topkapı Palace Museum in 2008 (From the archives of the Topkapı Palace Museums)

This advantage is not used to its full potential, apparently due to the lack of proper signage that causes a loss of definition at the top of the Osman Hamdi Bey Hill. The beginning of the ramp is unidentified, and it is difficult for people to understand that this is the road leading to the museum. There should be signs at the top of the ramp, leading the way to the museum entrance, arousing interest in the

passers-by, and emphasizing the entrance of the museum. This is one easy and fairly inexpensive way to increase its visibility and attractiveness.

Another issue is the path within the museum. The issue of the path does not constitute a major problem for the Children's Museum, since it is a relatively small hall with no partitions. Yet, the path from the entrance of the museum to the entrance of the Children's Museum could be marked in a better way. The sign above the entrance (figure 7.3) could also be improved.

Figure 7.1 The sign of the Children's Museum (Photograph by M. Bige Varlıer)

The sign of the Children's Museum is high above the entrance and hard to read due to the lack of contrast between some of the colors (white and yellow). The museum sign also should read "Children's Museum," not "Children Museum." The reverse letters do not have a particular meaning or purpose, and increase the difficulty of reading the sign, especially for younger children.

7.1 Space Organization and Use

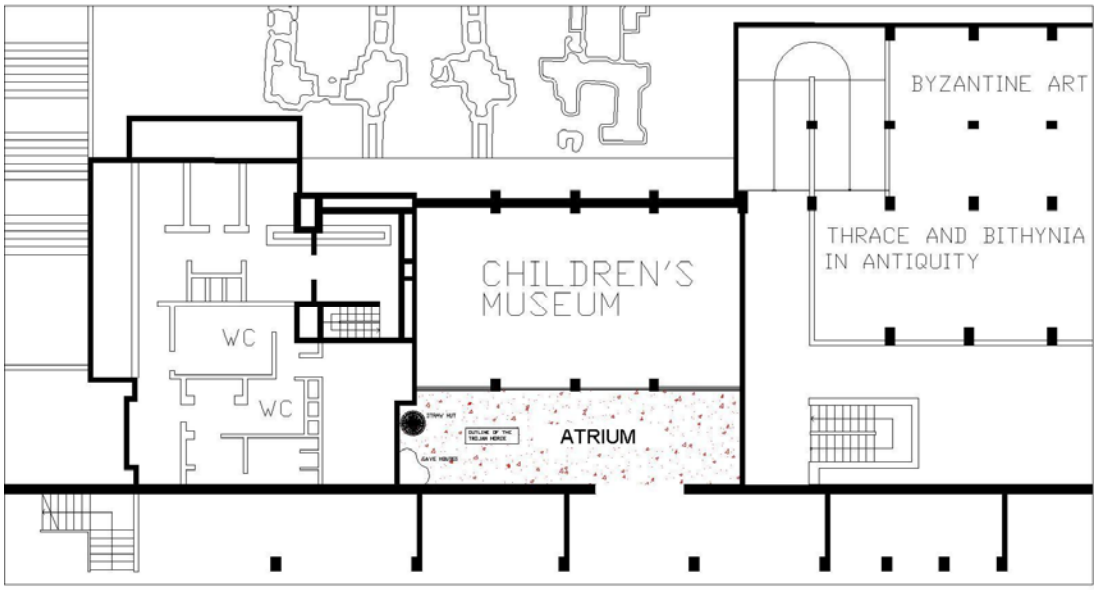


Figure 7.2 Plan of the museum with the areas under discussion highlighted – the entrance area (Drawing by M. Bige Varlıer)

The entrance to the Children's Museum is an atrium that is about 170 m² in size and 8.5 meters high, brightly lit and illuminated by skylights (figures 7.2, 7.3 and 7.4). The atrium is the main distributor of light for the surrounding spaces. Half of the space in the atrium is assigned to the Children's Museum and also acts as a circulation area integrated with the displays of the 3D models.

Figures 7.3 - 7.4 Views from the entrance (Photographs by M. Bige Varlıer)

Figure 7.5- 7.6 Views from the entrance of the Children's Museum showing the Trojan Horse and 3D models (Photograph by M. Bige Varlıer)

This atrium is not used efficiently considering the fact that it only acts as a transition space and houses no more than three exhibits: the two 3D models and the giant Trojan horse (figures 7.5 and 7.6), which children are forbidden to climb due to safety reasons. Therefore, in the new design, this area can be given a new function which can turn this space into a more integrated part of the Children's Museum.

The area of the current Children's Museum is adequate for the activities that currently take place – drawing and painting for groups of fifteen children – but after the refurbishment, this space will fail to function properly with the increasing number of activities and visitors. Therefore, it would be beneficial to increase the area of the space so that the museum can contain more display and activity areas for children.

The space on the second floor right above the Children's Museum was originally designed as office spaces but since the offices on the left wing of the classical building were sufficient, these rooms were left empty and occasionally used as storage areas. These office spaces have no visual or physical connection to the Children's Museum at this point and the stored items are also not related to the Children's Museum. It may be hard to imagine these two completely separate places being conjoined, but the drawings show that it would be possible with a simple alteration (figures 7.7 and 7.8).

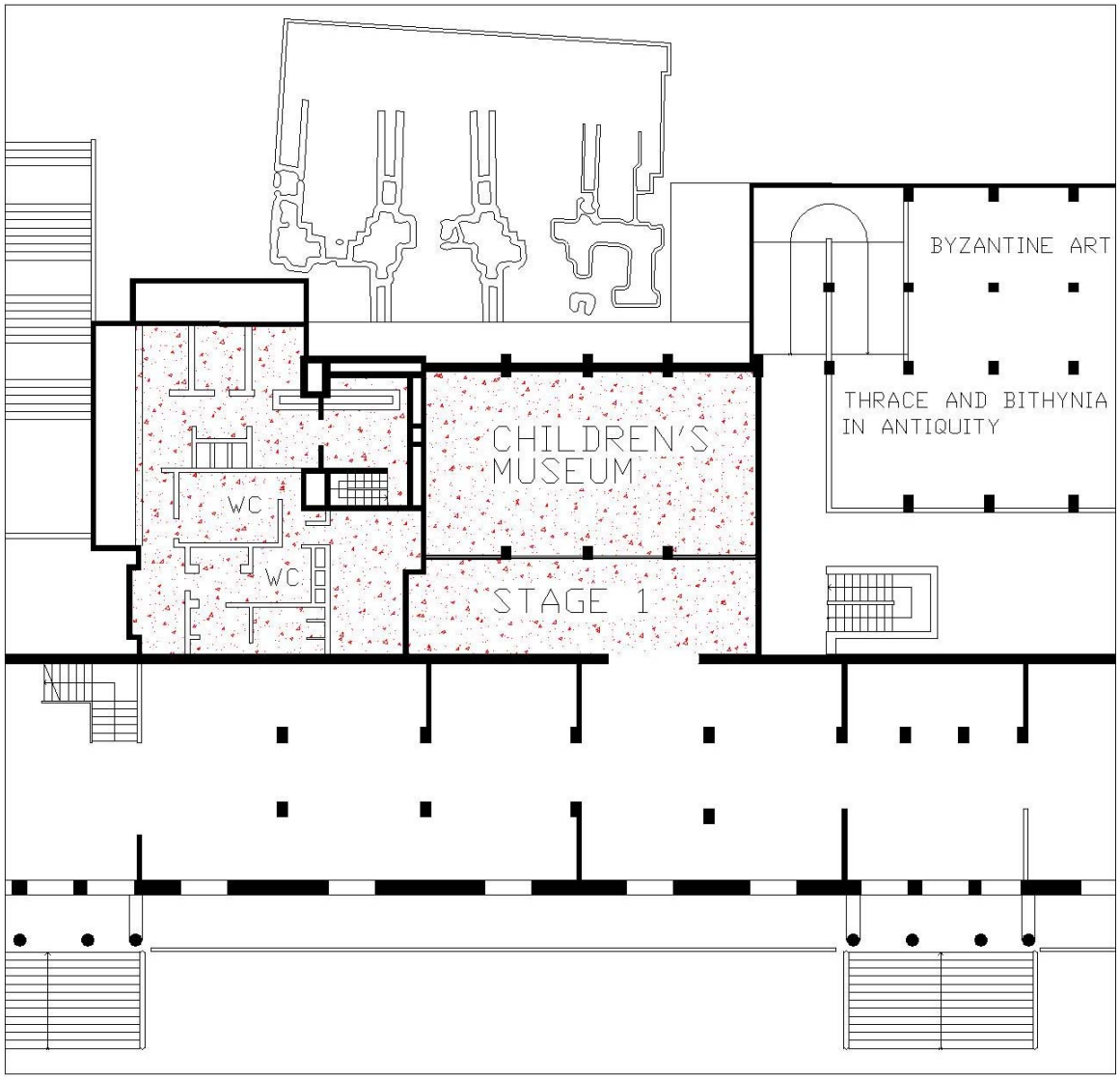


Figure 7.7 Ground floor plan of the proposed area of the Children's Museum; showing the boundaries of the selected areas for Stage 1 (Drawing by M. Bige Varlıer)

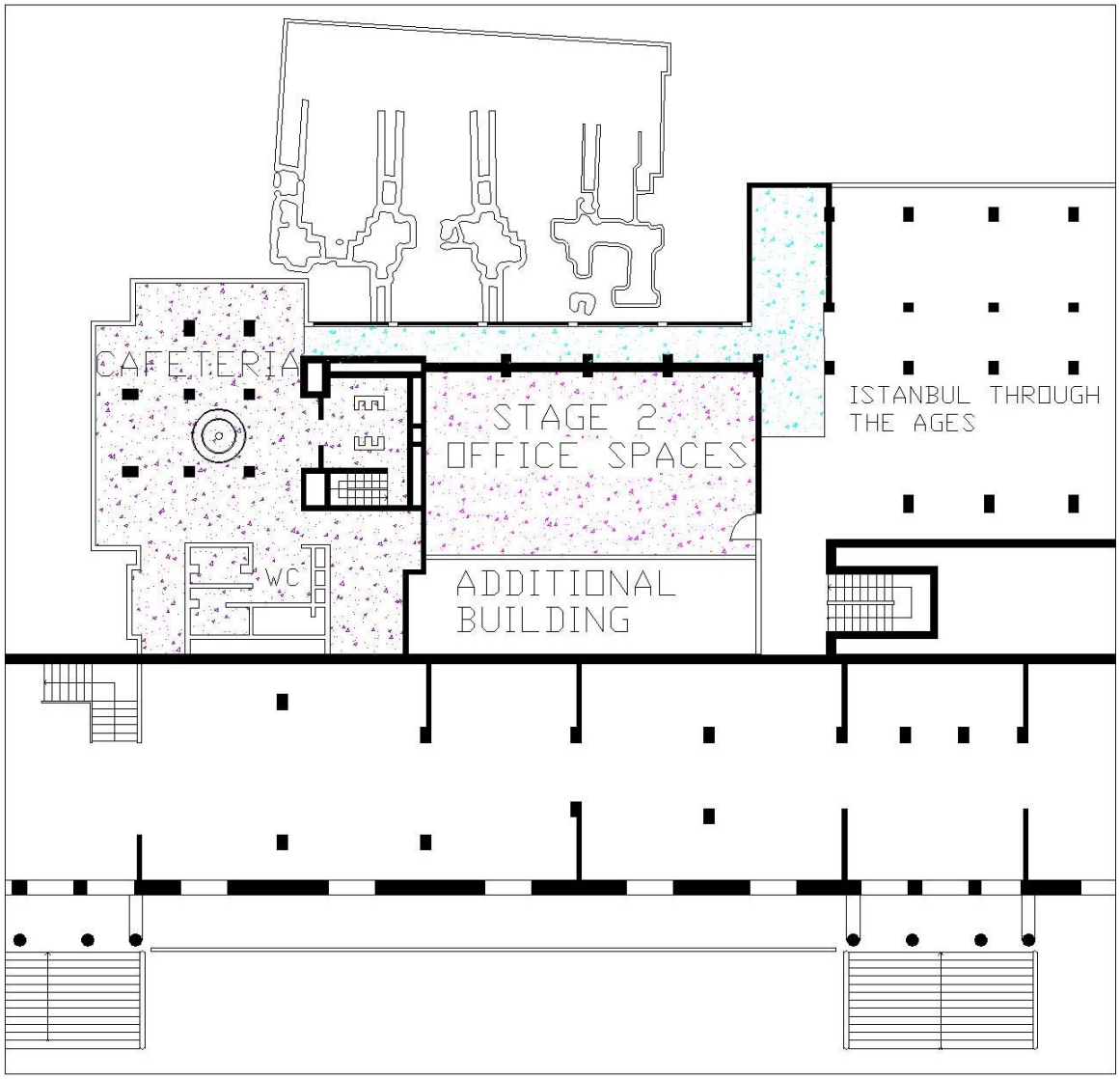


Figure 7.8 First floor plan of the proposed area of the Children's Museum; showing the boundaries of the selected areas for Stage 2 (Drawing by M. Bige Varlıer)

The design of a space is the most important aspect affecting how people feel in a certain environment. The color, lighting and furniture all influence the way people feel about that place. In this case, each aspect of the space will be analyzed separately.

Figure 7.9 – 7.10 Views of the centerpiece: the castle (Photographs by M. Bige Varlıer)

First of all, what attracts people the most in the Children's Museum is the castle-like structure in the center of the area. This castle-like structure first makes people think about the walls of Constantinople, which would have made sense since it can be considered as a reference to the walls, and since the museum houses an exhibition on Istanbul, called Istanbul through the Ages. Yet, the design team had no particular interest in making such a reference, and this piece is not related to any of the display items of the Children's Museum. The center, in general, is the most

important place of an exhibition space as the focal point; a meaning should be given to this space that is more relevant to the museum collections (figures 7.9 and 7.10).

Figure 7.11 – 7.12 Views from the interior of the castle (Photographs by M. Bige Varlıer)

The space inside the castle could have been used more efficiently, since it is a relatively large area (figures 7.11 and 7.12). There are no display items in the interior of the castle, for it was designed with desks and chairs as a drawing atelier for the children.

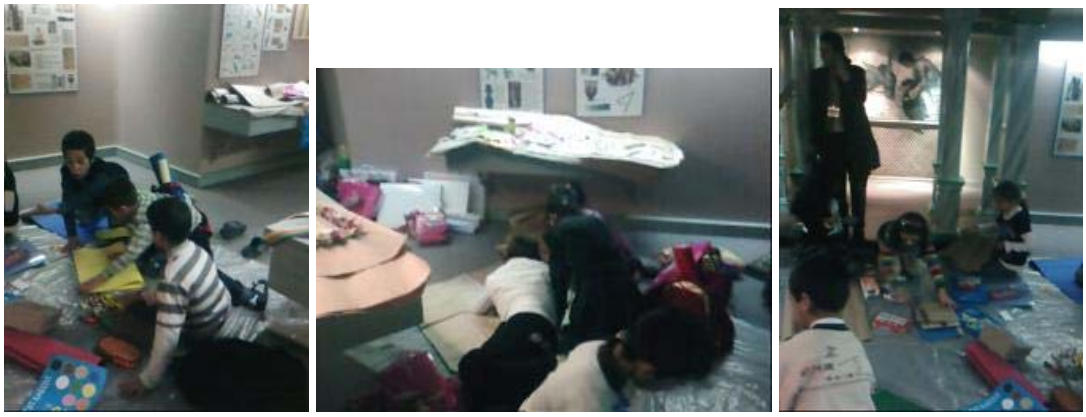


Figure 7.13 - 7.14 - 7.15 Children making drawings on a Student – Museum Day (Photographs by M. Bige Varlıer)

After an interview with Mine Kiraz – the only person responsible for the Children's Museum, though not completely in charge, I found out that school groups number around 30 students. This 50 square meter area fails to function properly due to the fact that it is almost impossible to accommodate 30 children in such a small space. As a result, the groups are mostly divided into two parts while one group sits, draws and paints, the other group first visits the museum. Also there are not enough chairs or desks, so the children also use the area outside the castle and lie down or sit on the floor as they are drawing (figures 7.13, 7.14 and 7.15).

Figure 7.16 The vast space outside the castle (Photograph by M. Bige Varlıer)

The space inside the Children's Museum is 190 m². Since there are no partitions or display cabinets that could be used as partitions, other than the castle, this space is not well-defined. The castle would have helped to define the space if it were to serve an essential function. The immediate surrounding of the castle acts as a circulation area integrated with the display items and the pictures on the walls, which can be an efficient pathway if used properly. In this case, it does not work; the children only use the location assigned to them to do their drawings and do not walk around the castle, as I have observed during the school groups' visits as part of the Student - Museum Days. The area around the castle is also very narrow and does not look like a pathway so it is completely left out. Unfortunately, the children

are not encouraged to look more closely at the objects in the Children's Museum, which is only a last-stop before their tour ends. Therefore, the Children's Museum has completely lost its function.

7.2 Lighting

"Lighting should be done first and foremost for the people who will occupy the spaces or areas being designed" (Steffy, 1990; 2), – in this case for the children visiting the Children's Museum, whose ages range from 5 to 15.

Figure 7.17 – 7.18 Photographs of the interior (Photographs by M. Bige Varlıer)

It is apparent that the low lighting of the Children's Museum is highly inappropriate, since it does not take into account the needs of the museum's audience (figures 7.17 and 7.18). For now, only drawing takes place in the Children's Museum; for drawing and further workshops that will be provided in this space, adequate lighting is essential since these tasks demand good visibility.

7.3 Information Panels

Figure 7.19 - 7.20 Overall photographs showing the positioning of the information panels (Photographs by M. Bige Varlıer)

The overall photographs show the locations of the information panels, which are inadequate and should be improved (figure 7.19 and 7.20). The information panels are located at the eye level of an adult and impossible for to read children. The panels are placed 80 centimeters above ground, with the highest point of

several being around 2 meters high, which makes it even hard for adults to read all the information.

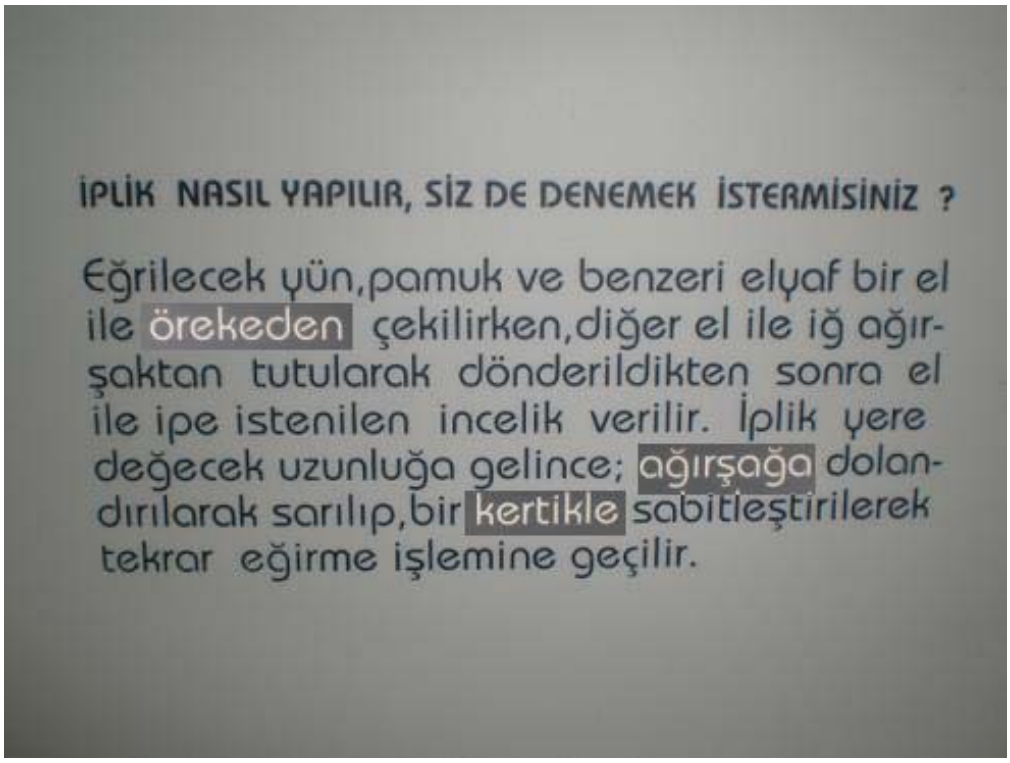


Figure 7.21 Example of a panel, displaying the language used (Photograph by M. Bige Varlıer)

The language used in the information panels is hard to understand. For example, words like “öreke” and “ağırşak” are used to explain the process of producing threads (figure 7.21). These words are not only hard to understand for primary school students, but also for any native Turkish speaker, for they are old-

fashioned terms not common in daily use. These words are explained and defined somewhere in the detailed information panels, which are also extensively long; it is difficult to keep focused and read till the end (figure 7.22).

Figure 7.22 Information panel explaining clothes and weaving – the location of the definition ‘ağırşak’ (Photograph by M. Bige Varlıer)

Another issue concerning the panels is that they are loaded with information; this brings up the question “How much information is needed?” (figure 7.23).

Figure 7.23 An overloaded information panel (Photograph by M. Bige Varlıer)

7.4 Labels

The most important issues to consider for evaluating the labels are light and glare, size, color and placement and their relation with the environment – that is, their context (Punt, 1989; 37). In the Children's Museum, the labels and information panels were written in 1995, before the museum was opened to the public. The labels were written by the museum staff and curators without the help of teachers who may have provided important feedback.

Figure 7.24 - 7.25 Photographs showing the context of the labels (Photographs by M. Bige Varlıer)

The labels and information panels are poorly located and not appropriate for the use of children (figures 7.24 and 7.25). The label size, letter types, and the viewing distance should be in ratio, because small letters can only be read from a particular distance. Since the labels were not evaluated or tested after their placement, this made it impossible to notice the design errors. A problem with the display cabinets is that the labels are facing upwards, and for a child under a certain height they are impossible to read (figure 7.26).

Figure 7.26 Labels with small letters facing upwards (Photograph by M. Bige Varlıer)

The placement and lighting affect the attracting power of a label; the labels should be well-lit without producing glare. The labels should have dark type on light background, since strong contrast makes them easier to read. Labels should consist of a maximum of fifteen words using mixed upper and lower case letters, rather than all lower or all upper cases; the letters of a label should not be under 18 points and hyphenating words should be avoided at the end of lines (Punt, 1989; 64). Here we see that the lighting of the labels is not appropriate; they are not well-lit and glare is a problem (figures 7.27 and 7.28).

Figure 7.27 – 7.28 Glare on the labels (Photographs by M. Bige Varlıer)

All labels and information panels are only in Turkish, and even for Turkish speakers, the labels are difficult to understand. In a globalised world, where universal design is of utmost importance, other methods and languages should be used, considering tourists and handicapped visitors. The museum is also visited by schools such as the British International School; thus, the main tourist language (English) should be used as a second language. The museum also needs other methods of interpretation, such as audio-visual aids, computers and multimedia terminals.

7.5 Available Workshops

The panels in the Children's Museum suggest many different activities (figures 7.29 and 7.30) – such as making statues, figurines and cylindrical stamps,

and weaving rugs and cloths – which are unfortunately not provided. As mentioned above, the visiting school groups only draw and paint (figures 7.31 and 7.32).

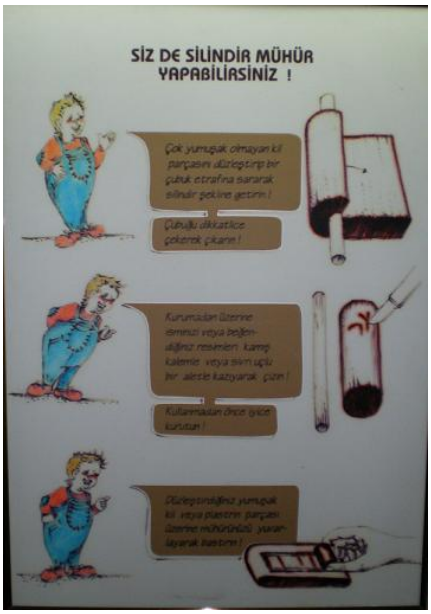


Figure 7.29 - 7.30 Available workshop suggestions (Photographs by M. Bige Varlıer)

Figure 7.31 - 7.32 Examples of children's drawings (Photographs by M. Bige Varlıer)

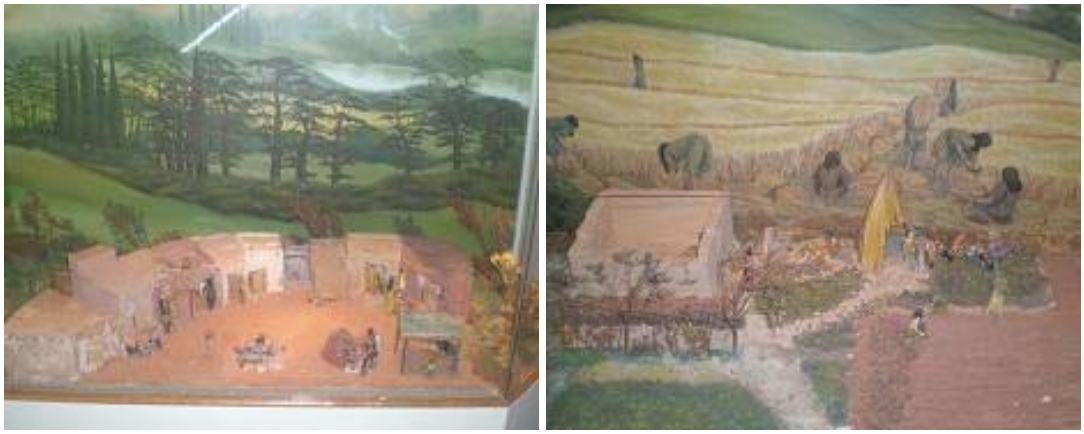
7.6 1/1 Scale 3D Models

Figure 7.33 1/1 Scale 3D models (Photograph by M. Bige Varlıer)

These models (figure 7.33) are actually quite relevant to the exhibits of the Children's Museum, showing the origins of houses and the concept of home, but some children find these models somewhat scary because the human figures are poorly made and look very primitive, also they have deteriorated over time. The models would have functioned more efficiently if they were more accessible for children to enter and see the interior. However, there are contrary opinions, such as Parr's: when the visitor gets inside a model designed to create an illusion where you can empathize with the actual character of that era, then not only does the model

lose its illusion effect, but also the participant also does not gain anything from the experience (Parr, 1973; 105). Parr has a point, but in this case I believe it is best if the children can walk into the models and create their own illusions.

7.7 Small Scale 3D Models



Figures 7.34 - 7.35 3D Models (Photograph by M. Bige Varlıer)

The small scaled 3D models (figures 7.34 and 7.35) are the pieces that are used as three-dimensional references to the eras relevant to the topics examined in the framework of the Student - Museum Days program. The human figures in these models also look very primitive and they could be improved and expanded to cover more stories.

7.8 Display Items

The display items of the Children's Museum, although few in number, are quite relevant to the mission of the museum, proposing examples of the origins of everyday items children see and know, helping them to have a personal connection with these items. For example, the clay tablets displayed in one cabinet belonged to Sumerian children. Some are students' notebooks, others their scribble sheets; some finger prints are also visible where they tried to erase something or put their hand on the tablet (figure 7.36). These items make the visiting children wonder about Sumerian children and empathize with them.

Figure 7.36 Student notebooks and scribbles (Photograph by M. Bige Varlıer)

The Children's Museum has great potential: its collections. Yet, in the Children's Museum the display items are covered with dust and need better care. Most of the topics in the Children's Museum are only displayed with the helps of photographs (figures 7.37, 7.38 and 7.39), and these exhibits can actually be improved with the use of the Istanbul Archaeological Museums' collections, taking advantage of its being part of a museum with more than 700.000 objects.

Figure 7.37 - 7.38 – 7.39 Photographs on the castle (Photographs by M. Bige Varlıer)

The Children's Museum has great potential to be explored. This is only be possible evaluating the current situation objectively and thoroughly, so that any flaws can be corrected and the museum can be used to its full potential with the refurbishment plan. Following the evaluation, I will propose a design plan the new Children's Museum.

8 PROPOSAL FOR A DEVELOPED AND IMPROVED CHILDREN'S MUSEUM

In this chapter, the aim is to design a Children's Museum where children can gain a positive museum experience and leave with delightful memories. Museum reorganization can start with either the restoration of existing buildings or adaptive reuse (Darragh, Snyder, 1993; 23). In the Children's Museum, a bit of both needs to be done. Restoration is basically the refurbishment of the existing structure, this would take place in the Children's Museum as well as in the cistern, which would be accessible as part of the Children's Museum's excavation program. Adaptive reuse would also take place in the museum, since we would not only be using the space allocated for the Children's Museum but also adding a second storey to the existing area, which would be modified and reconstructed to accompany the new needs and requirements of the children's museum.

8.1 Theme

Prior to exhibition design and programming, the museum should decide which ideas to communicate to the public based on knowledge about the audience, proper educational goals and a well developed aesthetic sense (Dean, 1998; 1). In the Children's Museum, there is some confusion about the display items and the

themes of the exhibitions; thus, in the new Children's Museum the boundaries of the topic should be established. For the new Children's Museum the chronological approach could be replaced by a thematic approach. The theme[12] would be "How did children live in ancient times?" The cultures would include:

1. Egyptian
2. Mesopotamian
3. Greek
4. Roman
5. Byzantine
6. Anatolian (Troy, Hittites, Urartu, etc.)
7. Seljuk
8. Ottoman

Then the chronological approach might be used as secondary method as the time frames change throughout the movement in the museum. Throughout this process, different philosophies of presentations would be used.

[12] The theme is inspired from Çiğdem Maner; for examples of discussion topics that can be applied to museum tours; and for the definitions of different labor groups, see Maner, Çiğdem. Tarih Canavarı Mezopotamya. Türkiye İş Bankası Kültür Yayınları, İstanbul. 2008

8.2 Modification of the Space

Every architect's dream is to use their creative talent in a flawless, fully functioning place with an unlimited budget, but this is not usually the reality. Therefore, the proposed design changes are divided into two stages for practical and economic reasons. The first stage of the design would include the current location of the Children's Museum, with the redesign of the adjacent space that functions as the kitchen for the cafeteria upstairs. The second stage would consist of the modification of the second-storey office spaces right above the Children's Museum, along with the transitional space between the "Istanbul through the Ages" Gallery, the office spaces and the entrance to the balcony above the cistern.

The museum building should be coexisting with its environment, either by complementing it or by creating a contrast (Atagök, 1999; 74). In the case of the Children's Museum, it is not possible to change the building or alter the existing structure, but one way to integrate the building and its immediate environment would be by opening the exhibition spaces towards the exterior, where there is the archaeological site of the Byzantine cistern[13] (figures 8.1 and 8.2). Integrating the cistern and the balcony looking towards it, would create a transitional space, along with new points of views and, therefore, new opportunities for the Children's

[13] The Byzantine cistern was unearthed during the construction of the additional building of the Istanbul Archaeological Museums in late 1960s. It is a plain, supportless cistern formed by the bead like relationship of rectangular spaces (Tezcan, 1989; 196). More information can be found in the excavation reports by Nezih Fıratlı (1978).

Museum visitors to explore, such as simulated excavations and special events (e.g. birthday parties and exhibitions of the children's handcrafts).

Figures 8.1 - 8.2 Vies of the cistern from the balcony (Photographs by M. Bige Varlıer)

With the proposed stages for the redesign of the Children's Museum (figures 8.3 and 8.4), the area of the museum would increase from 190 to 740 m², making more space available for galleries and workshops with more attractions for children, including alternative activities that could make children interested in new topics and cultures.

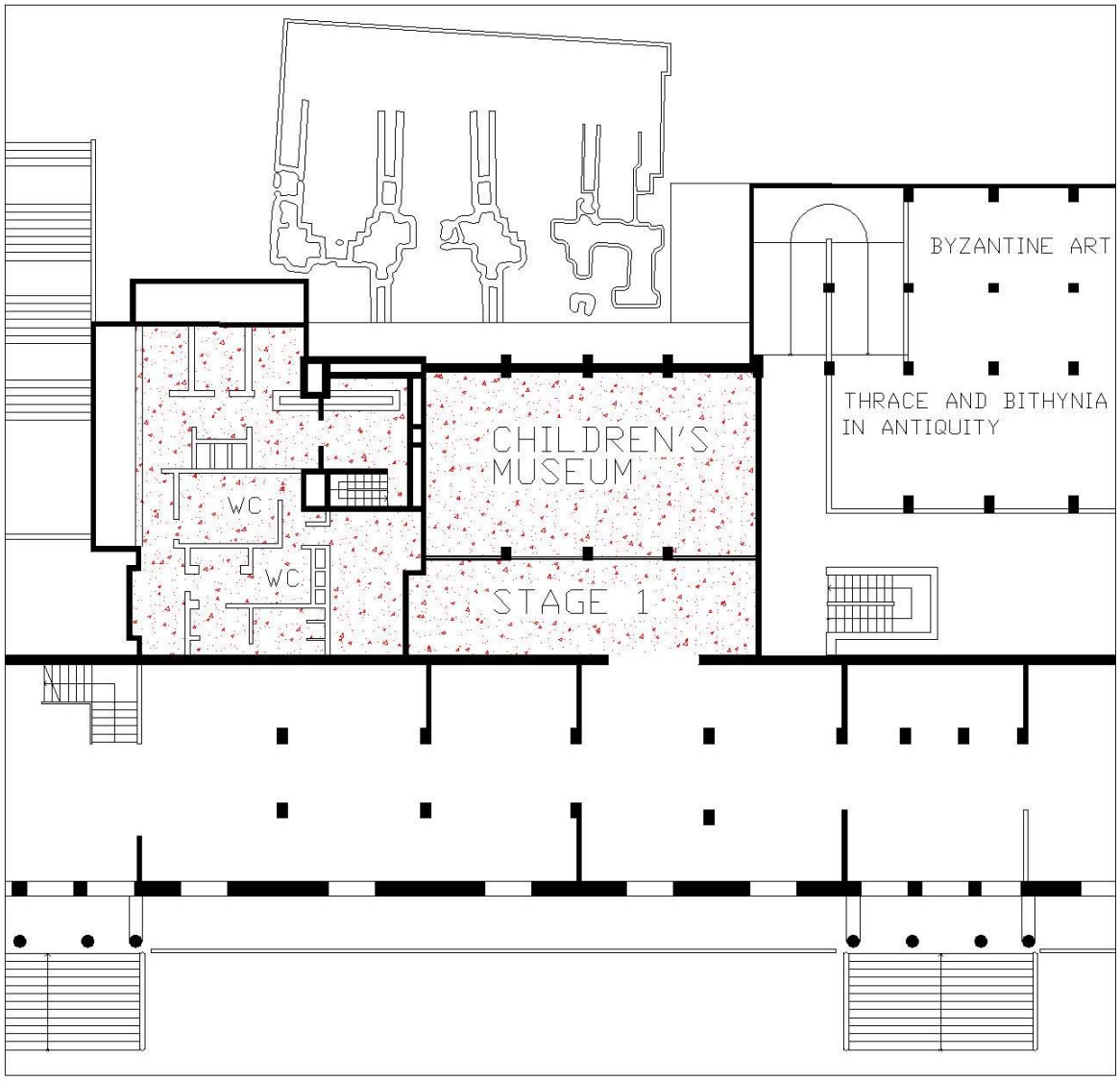


Figure 8.3 Proposed Stage 1 areas for the new Children's Museum (Drawing by M. Bige Varlıer)

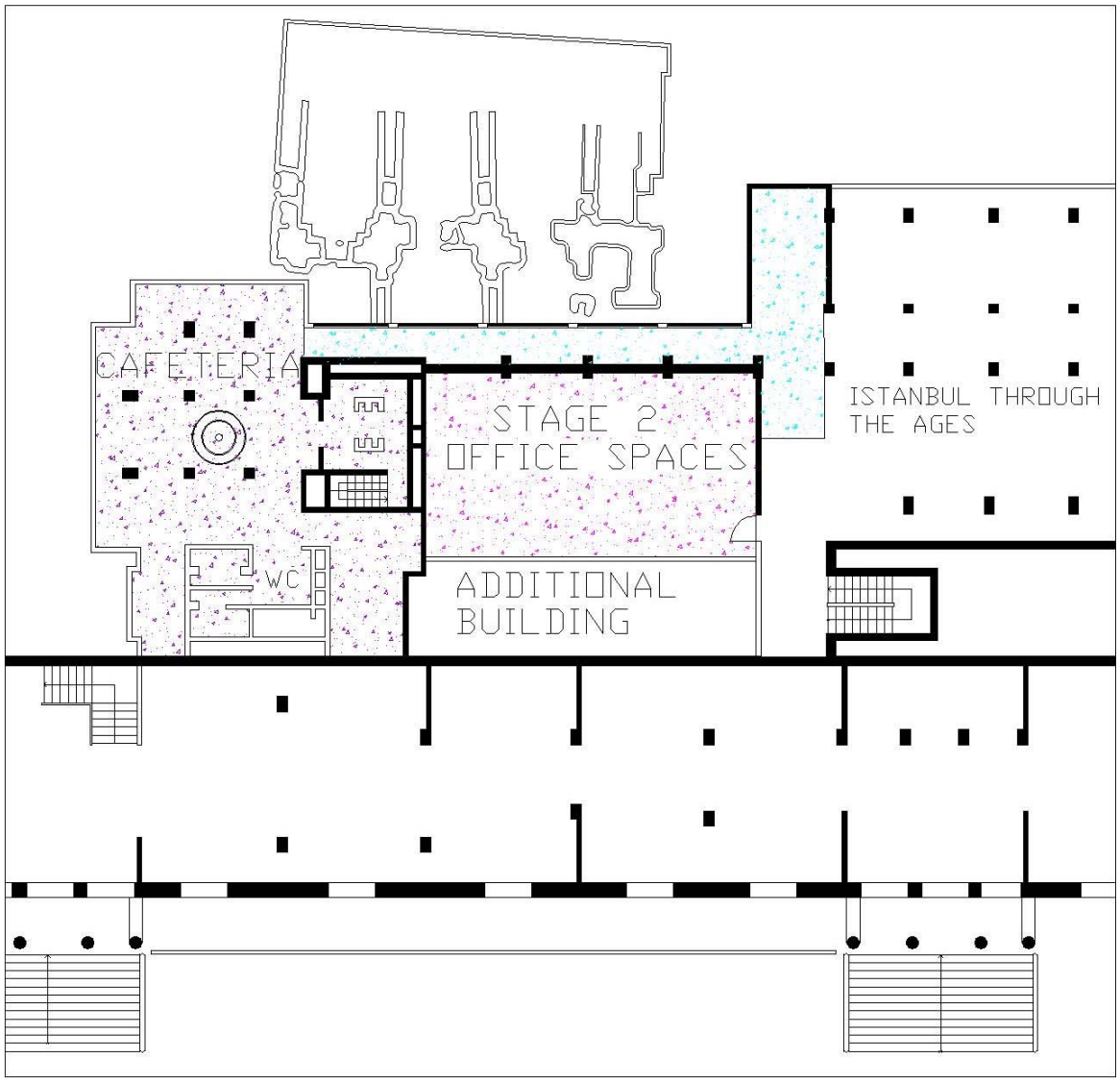


Figure 8.4 Proposed Stage 2 areas for the new Children's Museum (Drawing by M. Bige Varlıer)

8.3 The Path (A Day in the Museum – First Part)

The school visits to the new Children's Museum would start with the introductory 3D exhibits at the entrance of the museum, followed by a tour of the first floor gallery that would cover the eras in a chronological order. The first part of the tour would end with participating in some of the relevant workshops in the workshop area. During the break, the children would have lunch on the second-floor cafeteria that would be adapted as a child friendly environment. The second half of the tour would be dedicated to free, self-expressive activities such as drawing, painting, playing with dough or clay, acting and making their own exhibits. More focused tours would also be possible, during which the school groups might focus on particular eras and topics, participate in relevant workshops and perform activities connected with that topic. The whole tour would take around three and a half hours.

The Children's Museum does not have a separate entrance; therefore, visitors would have to walk through the halls of the classical building to reach the Children's Museum, which would create comfort in getting to know the museum before actually entering the Children's Museum. Public services such as the cloakroom and museum store are common spaces that the visitors of the Children's Museum would be free to use. The atrium would still be visible from the cloakroom and museum store, implying the impressive and awe-inspiring quality of the space.

In the proposed Children's Museum (figures 8.5 and 8.6), the focal point would be changed to the pool of light marking the entrance of the Children's Museum, creating an atmosphere of variety and change that counters monotony (Cohen and McMurtry, 1985; 31). The new two-storey Children's Museum instead of the single-storey, monotonous museum, would provide possibilities and opportunities, and different points of views and, with the outdoor extension, a new dynamic space and thus an enriched experience.

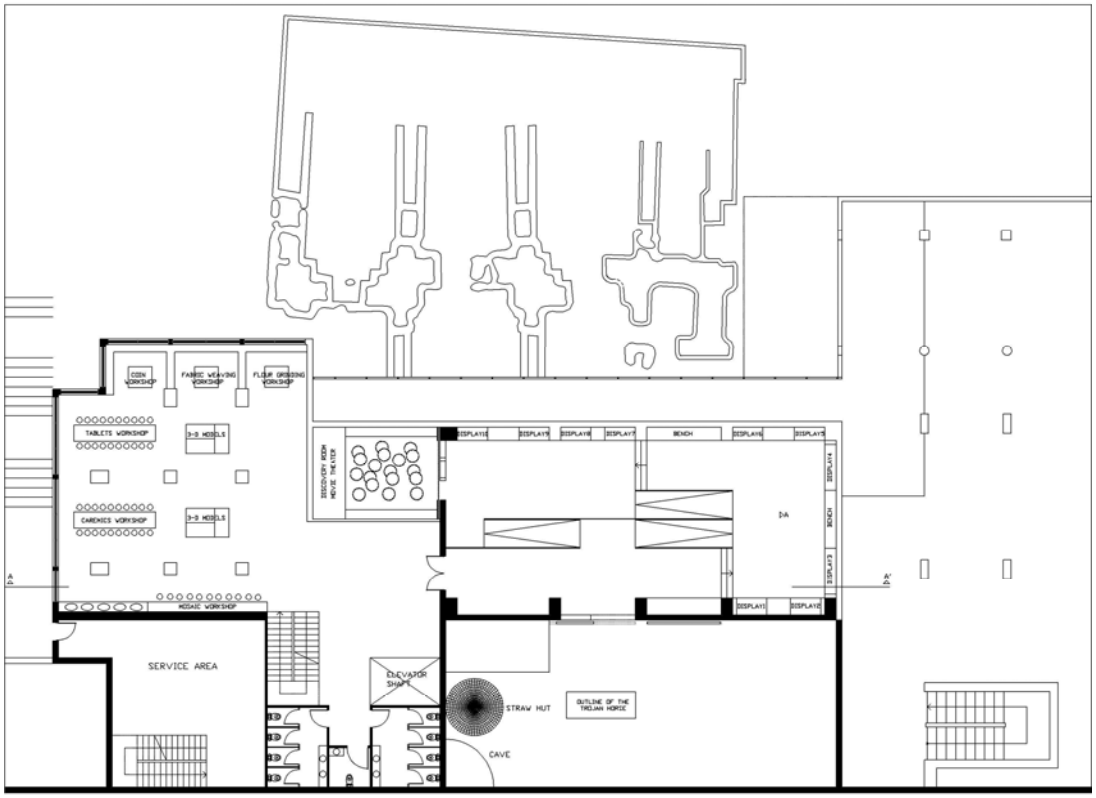


Figure 8.5 Ground floor plan of the new museum (Drawing by M. Bige Varlıer)

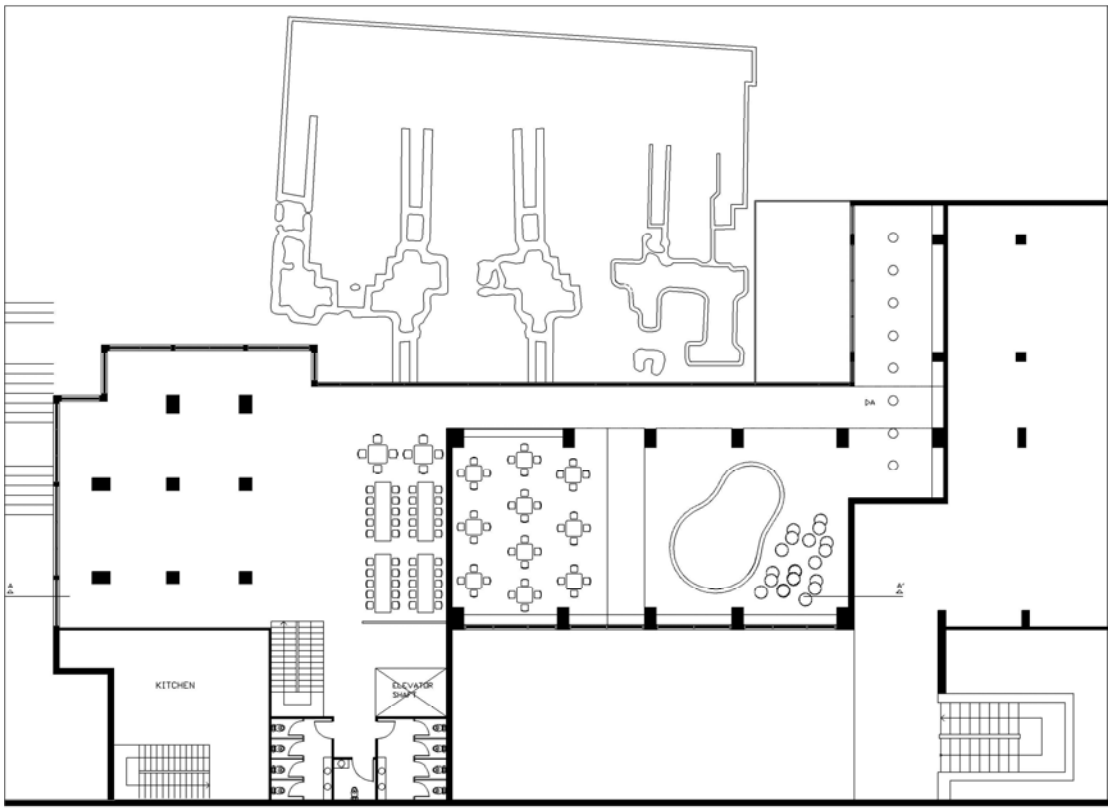
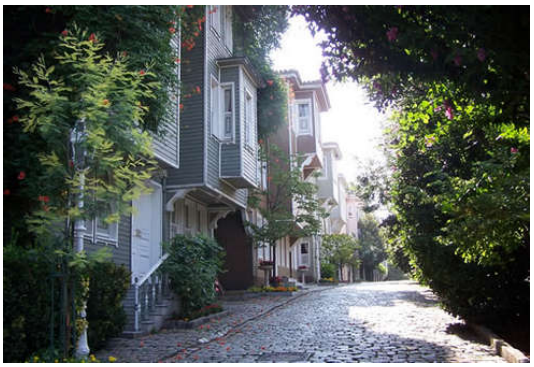


Figure 8.6 First floor plan for the new museum (Drawing by M. Bige Varlıer)

Before entering the Children's Museum, the children would stop in front of the 3D models that would become an integrated part of the museum. The models would be presented with the environmental method, and a large-scale exhibit would be used to recreate an atmosphere in time and place. The models in front of the Children's Museum would be rebuilt on human scale and the number of the one-to-one-scale models would be increased to three, showing the development of the

concept of home, from shelter to house in the form of cave[14], hut and an exemplary Turkish house[15], with important implications of the changing life-styles starring from Paleolithic times (figures 8.7 and 8.8). The houses would be kept to provide an introduction to the chronological order in the museum, starting with the symbolic development of the house concept based on three basic examples from different periods. The oil-painted 3D models would be protected by varnish, so that they would receive the least harm from the effects of daylight from the skylights.

Figures 8.7 - 8.8 Yarımburgaz Cave (left) (http://www.tayproject.org/)
Soğukçeşme Street (right) (Photograph by M. Bige Varlıer)

These models would be open for children to access so that they would be able to walk in and experience the environment in its original context. The artifacts

[14]The cave is inspired by the 1021 meters long Yarımburgaz cave in Küçükçekmece, Istanbul. See <http://www.tayproject.org/>.
[15] The Turkish house is inspired by the houses on Soğukçeşme Street in the Sultanahmet area, located between Hagia Sophia and the Topkapı Palace. For more information see: Gülersoy, Çelik. *Soğukçeşme Sokağı*. Istanbul: Türkiye Turing ve Otomobil Kurumu. 1989. Print.

– replicas within the 3D models – would be exhibited with the contemplative approach, displaying the objects in context in an aesthetic and affective mode which would complement the environment, so that children will see what types of instruments and items could be found in such a setting. Precautions such as riveting the replicas might be taken for the safety of children and durability of the items.

Dynamic approaches and audience participation are the key points to teaching through exhibits (O'Dea, 1968; 30), so children would have a discussion session based on these models. The discussion sessions in front of the models would provide children with information on these eras and the life-styles associated with them along with the improvements and developments in time. For the discussion sessions, alternative methods could be used, such as throwing something out of context, like a bottle, into the environmental exhibition (Abbey, 1968; 32) and asking the children about whether they notice the item out of context.

The entrance area of the Children's Museum is a vast pool of light with the use of natural light from the roof aperture above the atrium, whereas the interior of the museum is quite dark due to the lack of proper lighting. To reduce the light adjustment time of the eye, the lighting level of the interior would be increased because well-lit spaces are less intimidating, especially when it is a new and unfamiliar space for newcomers (Dean, 1998; 43).

Figure 8.9 The entrance of the Children's Museum (Drawing by M. Bige Varlıer)

After the discussion session in front of the 3D models, the children would enter the Children's Museum through a dynamic entrance formed by a triangle standing on its edge[16] (figure 8.9). A triangle is a dynamic shape in nature, and the size of the triangle, its placement on its edge, along with the use of the color red would strike the visitors' attention and invite them in.

[16] The sign of the Children's Museum has been inspired by the sign of DuPage Children's Museum, Illinois, USA; for more inspiring ideas see Images Publishing. Kids Spaces: Architecture for Children. Australia: National Library of Australia. 2004. Print.

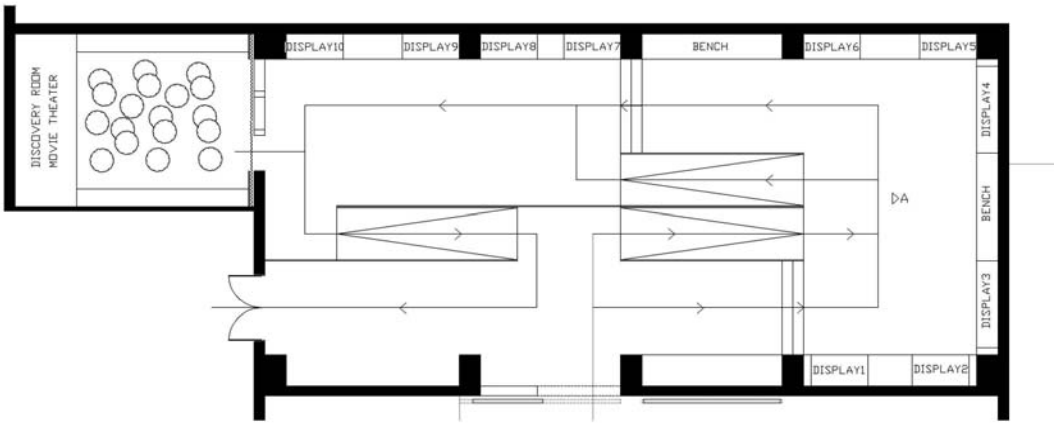


Figure 8.10 The route for the ground floor of the Children's Museum (Drawing by M. Bige Varlıer)

The museum tour would start from the right side of the museum hall (figure 8.10), which is also implicated from the leaning side of the triangle at the entrance, because most people tend to turn right in unfamiliar places (Dean, 1998; 51).

> The excitement which one sees in the faces of children in galleries is more likely produced by the alteration of the familiar with the unfamiliar and with the juxtaposition of the small with the large, the bright with the dull and the loud with the soft (Abbey, 1968; 32).

Variation and different points of views are important aspects of the design, since human beings and especially children seek the intriguing. The path should be delightful and mysterious with unexpected views near and far, high and low in a

children's museum (Cohen and McMurtry, 1985; 30) and therefore, an open plan will used in the Children's Museum, and the differentiations between the spaces will be created either by partition elements or paths which will not only direct the flow of the visitors, but will also be used as "exhibits" (Cohen and McMurtry, 1985; 30). Level differences and visual connections between levels will be created to provide built-in richness expanding the impact of exhibits (Cohen and McMurtry, 1985; 31).

Circulation takes up a lot of space, and circulation areas always compete with the small space for exhibits, causing museum fatigue and problems of communication. These problems can be prevented through relevant and delightful experience (Cohen and McMurtry, 1985; 30). Here, in order to avoid museum fatigue and communication mishaps and meanwhile provide more space for exhibitions, the circulation will be integrated with the exhibits, and the path will be integrated with the activity cores. Through the flow of the paths, differentiations will be created between spaces without totally isolating them and thus defining the appropriate spacing for the different functions. A dominant path will be used, whereas alternative though not obvious routes will also be offered to create mystery and provide the satisfaction of discovery (Cohen and McMurtry, 1985; 32).

Figures 8.11 - 8.12 Interior of the Children's Museum (Drawing by M. Bige Varlıer)

The use of high partitions, as temporary or movable panels, increases the hanging space and the display area (Lord and Lord, 2001; 197) (figures 8.11 and 8.12). Panels alongside the ramps will be used to hang photographs, drawings or paintings accompanying the display items, showing the objects in their context to make it easier for visitors to relate them to something familiar in their lives.

Daylight can be harmful to light-sensitive materials (Fontoynant, 1999; 71); therefore, the original artifacts will be displayed on the first floor where the gallery will be lit only by artificial lighting so that they will be protected from the detrimental effects of daylight.

The display cabinets will be presented with a thematic approach and will be located with intervals providing places of retreat in between in the form of benches

and sitting units (as seen in figures 8.13 and 8.14) to avoid museum fatigue and enhance learning and remembering by pacing the amount of information. This is because “activities and displays need to be punctuated and framed” so that time aids comprehension and gives a chance to process information (Cohen and McMurtry, 1985; 35).

Figures 8.13 - 8.14 Interior of the Children’s Museum (Drawing by M. Bige Varlıer)

The theme “how did children live in ancient times?” would apply to the display items. The items on display would cover examples on topics such as games, music, sports, religion, wood and metal works and commerce. The topics would be diverse because it is possible to connect all these topics to the main theme of the museum; children played games and had free time but also they were students and

learned a particular activity. For example, the son of a blacksmith was trained to be a blacksmith; girls learned to do housework, weaving, dying fabric, and the like.

The lights in this gallery would be arranged in a way that would create illumination level differences, ranging from high to low, because of the irregularity of arrangement and shapes; this would raise curiosity and attract more people. Textured flooring along with low and directed lighting, lend a space a feeling of intimacy and warmth (Dean, 1996; 48).

In the new Children's Museum, there would be 3D exhibits, wall exhibits, table-top and free-standing exhibits. All these face the problem of glare and, therefore, light should not be reflected from the windows of the display cabinets; this would be avoided by tilting the glass. Glass would be used for the built-in and free-standing display cases, because it is cheaper, more durable, secure against vandalism and fire-resistant (Hahn, 2001; 198). The display cases would be lit from inside with LED and/or fiber optic strands.

The labels in the new Children's Museum would be both in Turkish and English, whereas tear-and-take pads and information leaflets will be available in many languages such as German, French, Italian, etc. Tear-and take-information pads, including a photograph of the object and brief notes about it, would help the visitors remember the items even long after the museum visit.

8.3.1 Activities[17]

Some activity ideas have already been suggested in the museum, but it is important that these are implemented to get the children engaged in the process of museum education. In the galleries, there would be built-in computer terminals in between the display cases, which would provide games testing memory and perception, such as matching colors and sounds to visuals and puzzle-solving.

Computers and multi-media terminals can be used effectively by the fourth and fifth grade students and even by younger children in this age of technology and information. These would provide contextual information with the help of games to explain processes, concepts and principles (Lord and Lord, 1997; 108).

Sound effects would also be used in the Children's Museum to complement the contemplative philosophy of presentation used for the 3D models of the prehistoric times. In addition to audio-guides, guided tours would be a preferred method for the Children's Museum because of their personal quality of integrating the visitors in the experience (Lord and Lord, 1997; 108).

[17] Some of the activities in the Children's Museum is inspired by the activities suggested in Gods and Gladiators: Everyday Life at the Dawn of Civilization. For more activity proposals see Tames, Richard and Steele, Philip. Tames, Richard and Philip Steele. *Gods and Gladiators: Everyday Life at the Dawn of Civilization*. Southwater, London. 2004. Print.

8.3.2 Hands-on and Replicas for Hands-on

Rather than looking at the artifact behind glass and reading about it on a museum label, it would be a better learning experience if children can try and use the item themselves, so that they could figure out how the object was used and relate it to their own experiences. Helped along by the labels, they could think and fully receive what the museum and the exhibits have to offer.

Throughout the museum tour, educators would provide children with a basket of replicas for hands-on, which would then be passed around among the children so that they can touch, feel and examine the objects and materials.

8.3.3 The Discovery Room[18]

The Discovery Room (figure 8.15) would be closed with a curtain to create mystery and provide the satisfaction of discovery because "exploring enables one to divert attention from preconceived paths to pursue some intriguing lead" (Oppenheimer, 1982; 40). The curtain for the drama atelier would create a cozy, closed and mysterious space detached from the surrounding areas and activity spaces. The locked drawers would be lined along the two side walls of the room that would contain small collections-mini exhibits including sherds and touchable objects. The drawers would be locked, and every child would be given a key that opens only one

18 Inspired from the Smithsonian Museum; see Gabianelli, Vincent J. and Edward Munyer. "A Place to Learn". Museum News. 53.1., (1974): 28 – 33. Print.

of the locks on the drawers. The children would be allowed to take the contents of their drawers and move to a recess point or sit anywhere they want so that they would have some privacy and be by themselves while examining a “secret” treasure. The drawers would also include label cards with questions that would lead the child to other locations to look for answers. The museum hunt following clues and trails would create mystery, enthusiasm and excitement.

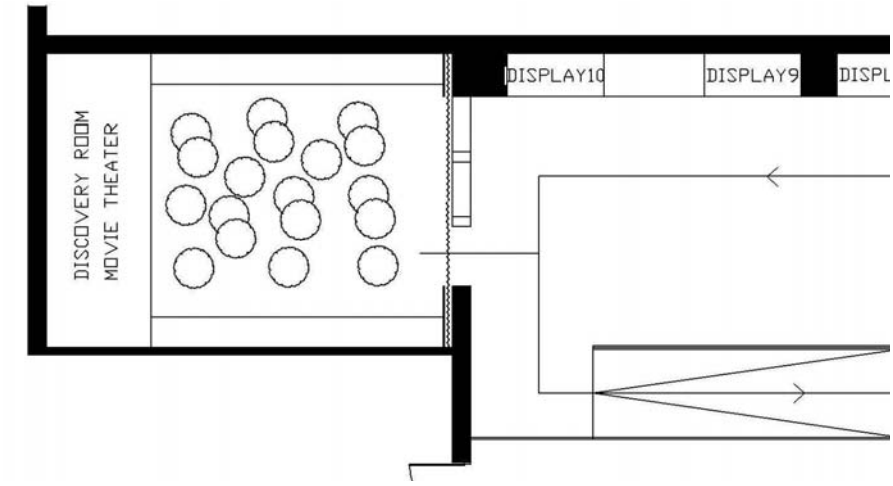


Figure 8.15 The Discovery Room (Drawing by M. Bige Varlıer)

This room would also function as movie theater if the educator prefers to show a film or documentary to the children. A comfortable and informal atmosphere would be created in the Discovery Room.

8.3.4 Workshops

The new workshop area (figure 8.16) for the Children's Museum would be located in the transitory space that presently serves as the kitchen. The workshops would include weaving, pottery, model-making, making sculptures or small statutes with play dough or clay and print-making. The children would be able to attend any relevant workshop while they might chose to attend another one on their second visit.

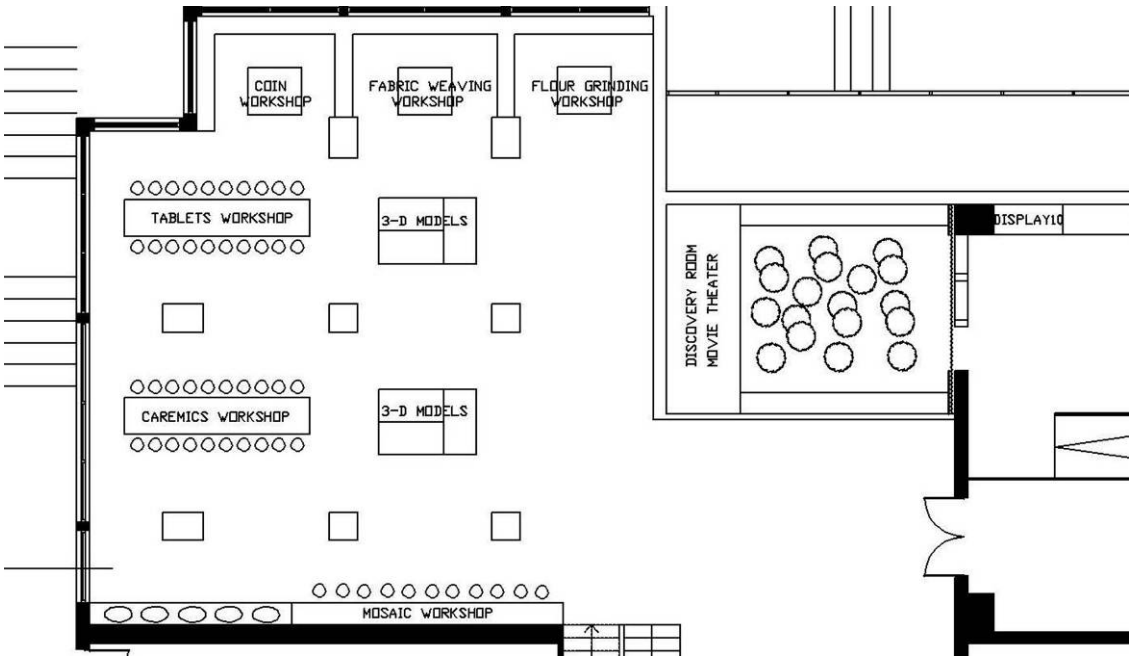


Figure 8. 16 Workshop areas (Drawing by M. Bige Varlıer)

The free-standing display cases would show the 3D small-scale models of the relevant eras. The small-scale 3D models would also be used as inspirational items for group discussions leading to questions about the theme "how children lived in ancient times?" by pointing out different games and occupations depicted in their environmental context. To discuss the artifacts, children could be asked to relate the objects to something familiar or contrasting, something they know or own. They might be asked to make up stories about the owner of the object, how it was used, and how it was produced; then the story can be compared to the original story (Abacı, 2003; 10). A sample story can be about an iron Urartian cauldron produced by a blacksmith whose son is also trained to become a blacksmith. The cauldron is used daily in their home by the women of the house for dying the fabric that will then be used to make clothes or sold in the market. The sub-theme of occupations also puts an emphasis on gender issues since occupations are passed on to generations from father to son or from mother to daughter and certain jobs are considered to be gender-specific.

8.4 The Path (A Day in the Museum – Second Part)

After the first half of the Children's Museum tour, the children would use the elevators or stairs to move to the second floor (figure 8.17), which consists of the second half of the tour after the lunch break at the cafeteria. Part of the cafeteria

would be turned into a child-friendly place with decoration and seating according to the proportions of the children, so that they would be able to use it easily without having to go through all the halls of the museum. The location of the cafeteria is secluded and, therefore, the new arrangement would not disrupt any other museum functions, also allowing staff and visitors to enter through different entrances so that there would not be crowded spots or any interruptions during delivery or garbage removal.

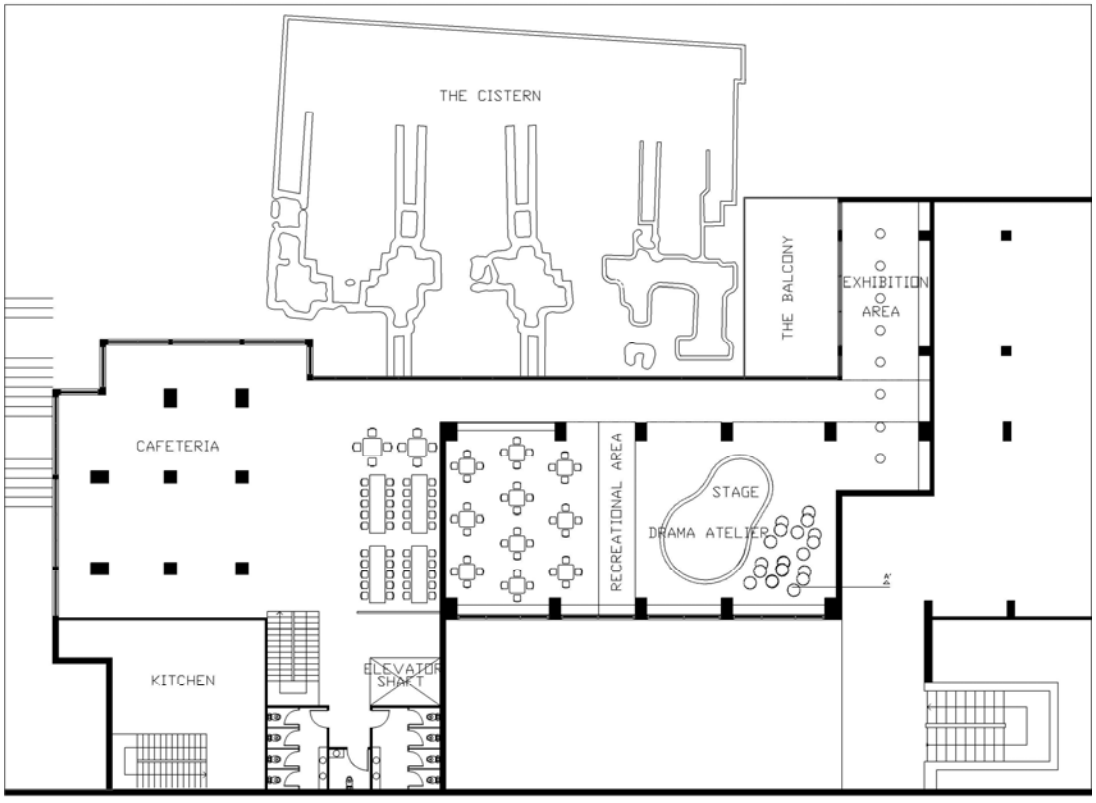


Figure 8.17 First floor plan with the areas under discussion (Drawing by M. Bige Varlıer)

After the lunch break, the children would go to the free activity area next to the cafeteria. Such a recreation area is supposed to be around 80 to 85 m² (Neufert, 2000; 307) and so this area would be 95 m² to accommodate about 30 children. This place would include tables and sitting units for self-expressive activities such as painting, drawing, playing with puzzles or with dough or clay to write on tablets, making figurines or statues, etc (figures 8.18 and 8.19). Low partitions would create visually accessible spaces defining the boundaries of a space without visually eliminating the neighboring areas. Warm colors would be used in this space along with the stimulating and alert colors as accent because a warm, bright color scheme complements the extroverted nature of children (Mahnke, 1996; 183).

Figures 8.18 – 8.19 The free time activity area (Drawings by M. Bige Varlıer)

8.4.1 Drama Atelier

There would be a raised platform for the drama atelier which would be visually accessible from the activities area. During concerts and plays, the chairs would be arranged for the audiences to sit and watch the performance. Different modes of daylight would be used in this space, such as the façade windows looking towards the internal courtyard where the cistern stands and the windows looking towards the atrium, which receive diffuse and indirect light (see figures 8.20, 8.21, 8.22 and 8.23 for alternative renderings of the stage).


Figures 8.20 - 8.21 Drama atelier stage (Drawings by M. Bige Varlıer)

The drama atelier area is 105 m² so that it can provide at least 1,5 - 3 m² floor space per child (Neufert, 2000; 325).

Figures 8.22 - 8.23 Drama atelier stage (Drawings by M. Bige Varlıer)

A movable cart would be used for the props and clothes for the drama atelier. An alternative activity for the drama atelier could be impersonating the characters within the museum – such as statues from the museum collections, live sculptures, or characters from the 3D models from different periods. The children can gain an intimate personal experience with the help of the drama atelier.

8.4.2 Exhibition of Children's Works

Next to the drama atelier stage, there would be an empty exhibition space for children's works. School visits would be arranged from Monday to Friday, and during weekends the children's works would be exhibited within the allocated space (figures 8.24 and 8.25) to be arranged by the children themselves.

Figures 8.24 - 8.25 The children's exhibition space (Drawing by M. Bige Varlıer)

8.4.3 Special Events

Special events and birthday parties in the museum are considered alternative methods to increase museum attendance.

Figures 8.26 - 8.27 Views from the balcony of the special events area (Photographs by M. Bige Varlıer)

Such occasions provide the children with a chance to become familiar with the museum environment where they can feel comfortable with their friends and family at special occasions. Such activities would take place indoors, in the Children's Exhibits area, in winter and outdoors, on the balcony outdoors in summer (figures 8.26 and 8.27), offering a beautiful scenery with the view of the historical cistern all year long.

8.4.4 Simulated Excavations – The Archaeology Summer School[19]

Simulated excavations can be used as a method of teaching archaeology, providing experiential learning and developing "high-order thinking skills" (Clark; 9). This activity is also implemented in the Anatolian Civilizations Museum. The children are granted a mock archaeological research permit, and the fieldwork consists of "learning proper mapping techniques, conducting a survey of the cistern, participating in the simulated excavation of the cistern and analyzing and recording the information and artifacts discovered in the excavation" (Clark; 9). Clark's project is a three-year program, the first year working with a group of students, the second year working with a new group of students integrating the previous year's students into the program as peer instructors, and the third year working on a

[19] A recommended outline of an archaeological course design, prepared by Joella G. Clark, can be found in "Public Education Committee: Should Kids Dig?" http://www.saa.org/Portals/0/SAA/publications/SAAbulletin/16-5/SAA9.html

multimedia component to communicate the research findings. The program of the Anatolian Civilizations Museum, however, is a one-day activity. One day may not seem enough for this program, but the students very much like this activity. It might be possible to fit this program into a two-week or one-month program that might be a summer school for children.

Figures 8.28 - 8.29 - 8.30 Views from the cistern (Photographs by M. Bige Varlıer)

This activity would take place in the Children's Museum, using the cistern as the excavation site (figures 8.28, 8.29 and 8.30). The site would have to be prepared for this project, filling the allocated location with a new layer to hold the replica findings and sherds so that the original archaeological site of the cistern can be protected with the new layer of filling. This program would "allow students to

experience reality, and help them develop a deeper understanding of the concepts and processes" (Clark; 9). Learning by experience would be more effective than any other kind of education.

Alternatives for summer courses could be drawing, pottery, photography, sculpture, and the like, which would help the visitors to get engaged with the museum environment and therefore spend more time in the museum.

A suggestion box for potential exhibitions would be a good way to learn what the visitors want (Lord and Lord, 1997; 96). Talking to and listening to the children is a rather effective way to get to know the audience and create design solutions based on the opinions of the audience.

9 CONCLUSION

The design process can be broken into eight steps as shown below (Kilmer, 1992; 156). Six of them have already been accomplished in this thesis, which consists of a case study of the Children's Museum located within the Istanbul Archaeological Museums, with an objective evaluation of the current state of the museum, and concludes with an alternative design to create a fully functioning children's museum.

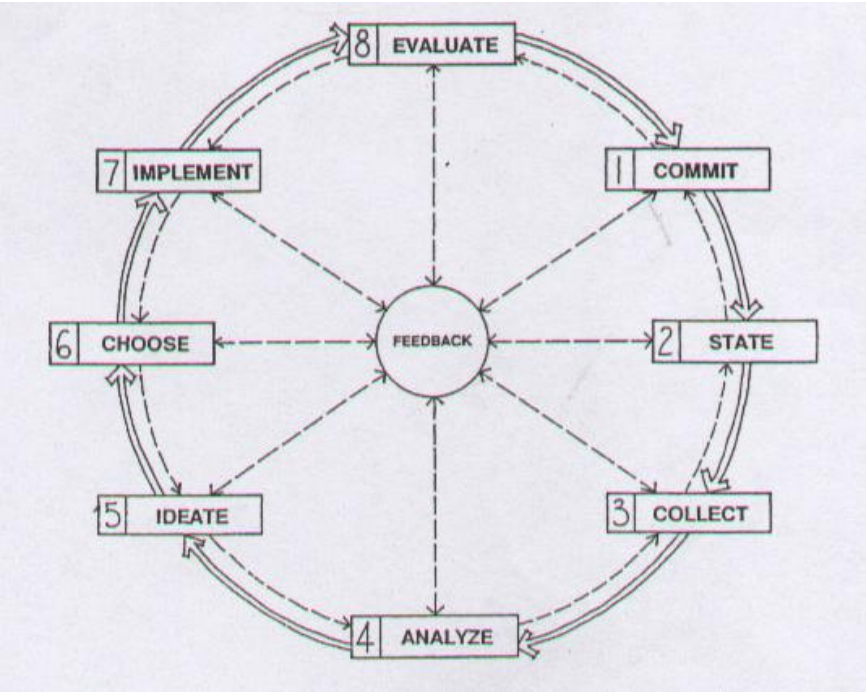


Figure 9.1 The steps of the design process (Kilmer and Kilmer, 1992; 156)

The major recommendation for change in the Children's Museum includes a different and larger floor plan covering two floors, thus increasing the area of the museum substantially and making more space accessible for children's activities. Possible subjects for the display cases and activity have also been offered here. The range of the display cabinets covers Egypt, Mesopotamia, Roman, Greek and Byzantine cultures, and Anatolia including the Hittites and the Trojans, following a similar chronological order of approach as the Istanbul Archaeological Museums. The concept of the museum is "how did children live in ancient times?" which is a fertile topic that might be associated with the everyday lives of the people along with epics and stories, making it possible for children to relate the stories and artifacts to actual events or objects from their lives.

The seventh step that cannot yet be a part of this thesis is the implementation. The refurbishment of the Children's Museum is only a case study for this thesis right now, but there is a possibility that the design may be applied to the assigned location in the near future. This thesis has focused on the interior design plan; yet actual implementation would require many other experts in areas such as: budgeting, schedule design and management, team facilitation, visitor research, subject-matter, label-writing, editing, design, and production, cost-estimating, and educational theory (Kamien, 1997; 100). An architect is not able to deal with all of these related

issues effectively; therefore, staff members and outside consultants must be involved in the process (Lord and Lord, 2003; 4) .[20]

Even before the implementation phase, a more detailed concept plan for the museum needs to be developed by the museum staff. This would include a mission statement, mandate claim, statement of purpose, and collection and loan policies. The Children's Museum needs its own staff and budget assigned for maintenance costs. Furthermore, a separate department in charge of the Children's Museum has to be formed; the curators of the Children's Museum should decide what is to be exhibited and work in cooperation with the curators of the Istanbul Archaeological Museums. Attention also needs to be paid to relationships between the museum and other institutions such as the government, schools, other museums as well as relations with the tourism industry and the public. These are important issues, but fall outside the scope of this thesis.

The implementation phase has to be followed by the evaluation phase, because, despite all previous research and critical assessments, there is still a possibility that the newly improved Children's Museum may fail to work properly in some parts and "require observing visitor behavior and then modifying the exhibits until they achieve the educational purposes" (Starr, 1982; 38). Even if the museum and exhibits worked smoothly and properly from the opening day onwards,

[20] This is the main reason why I needed help for the selection of topics for the chronological display cabinets, and label-writing process and the 3D modeling in the design process.

museums, even though this is an archaeological museum, should be contemporary and adapt to the needs of the time. People have changing interests and needs and so the response of the audience should be monitored in order to evaluate and modify the current practice, the exhibits and activities (Greene, 1997; 39). Observer-based environmental assessments are necessary since they can measure the environmental quality of the space that relates to human interaction with the environment (Gifford, 2002; 83).

Despite the rising popularity of museums, they still need to deal with the threat of expensive maintenance costs, the need to keep visitor numbers rising or at the very least constant; these can only be possible with the help of formative evaluations and continually investing in new and improved exhibitions and programs. Attracting new visitors and encouraging the old visitors to come back can be achieved by delivering high-quality services and learning experiences (Falk and Dierking, 2000; 223).

Most of the changes I have suggested in the case study would work within the original structure of the museum building and would not require a separate building or additions to the museum. I have also tried to make suggestions that are economically reasonable. The children's museum – with some investment – could become a center for high-quality museum education experiences.

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<http://www.rmk-museum.org.tr/english/index.html>.

Ontario Science Centre, Toronto Website. 20 September 2009.

<http://www.ontariosciencecentre.ca/>.

The Staten Island Children's Museum Website. 20 September 2009.

<http://statenislandkids.org/>.

Tropen Museum Junior, Amsterdam, Netherlands Website. 20 September 2009.

<http://www.tropenmuseum.nl/smartsite.shtml?ch=FAB&id=7501>.

High Museum of Art, Atlanta Website. 20 September 2009.

<http://www.high.org/>.

Archaeological Settlements of Turkey. 20 September 2009.

<http://www.tayproject.org/>.

APPENDIX A

Examples of worksheets

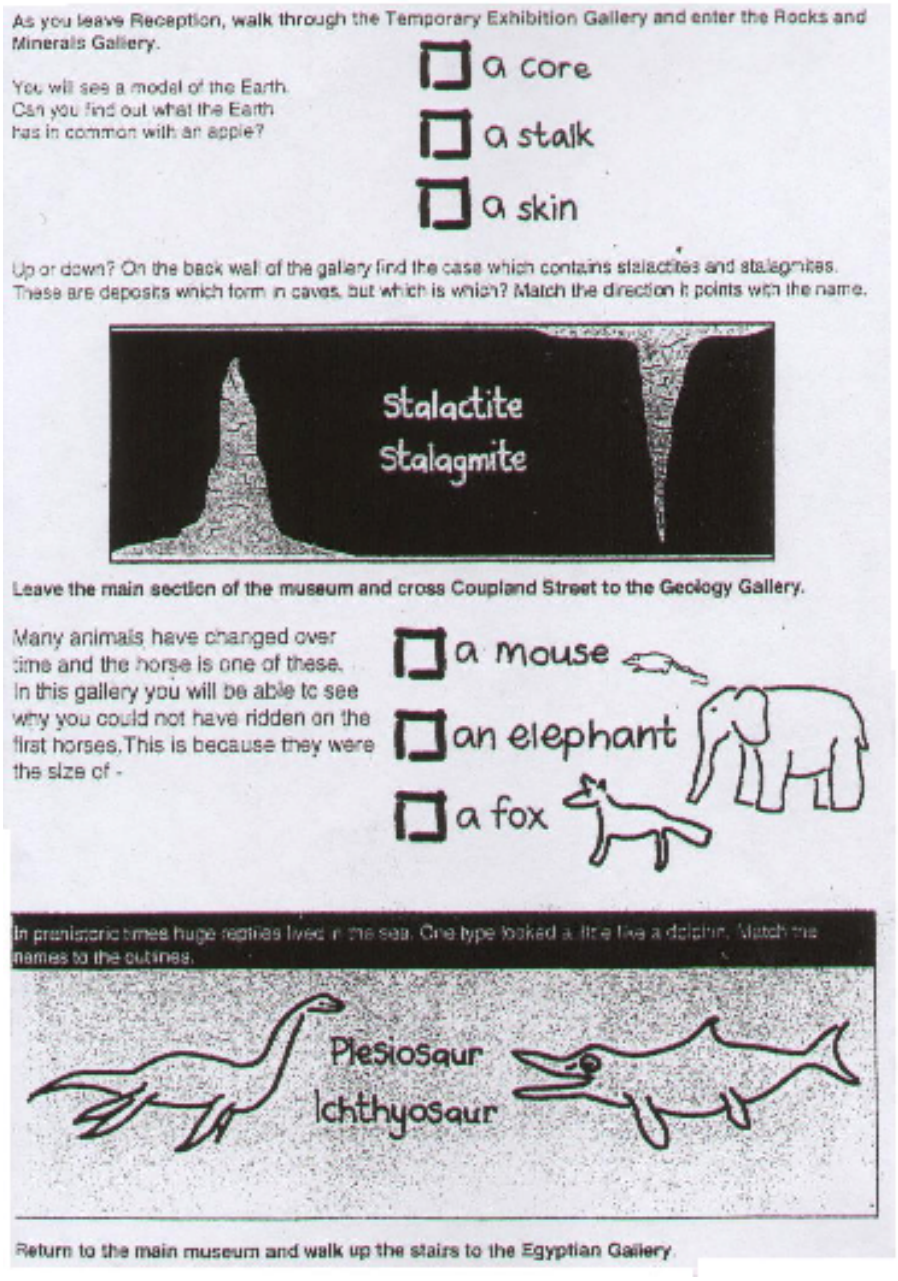


Figure A.1

Worksheet for 1-8 year olds in the Manchester Museum

(Abacı, 2003; 9)

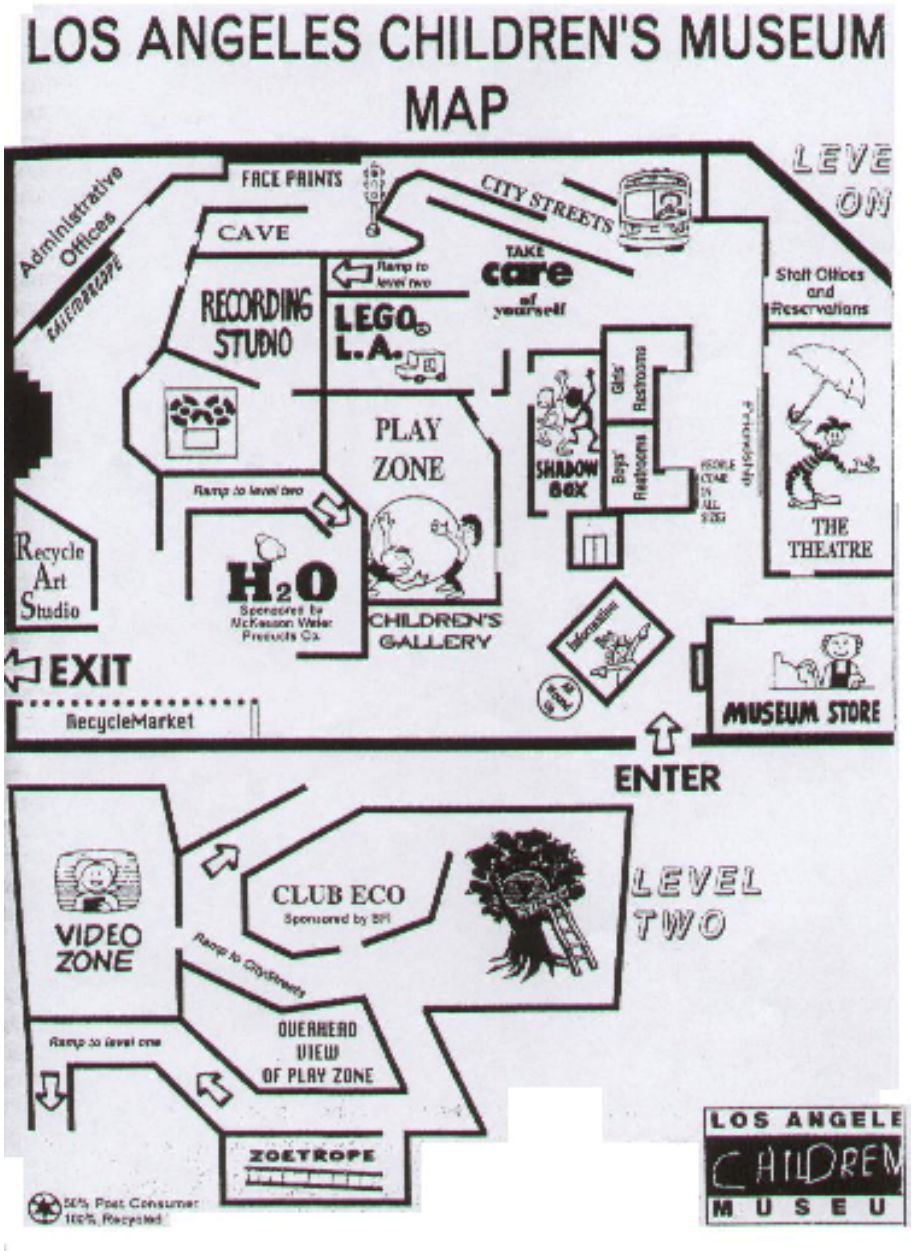


Figure A.2

Map of Los Angeles Children's Museum

(Abacı, 2003; 13)

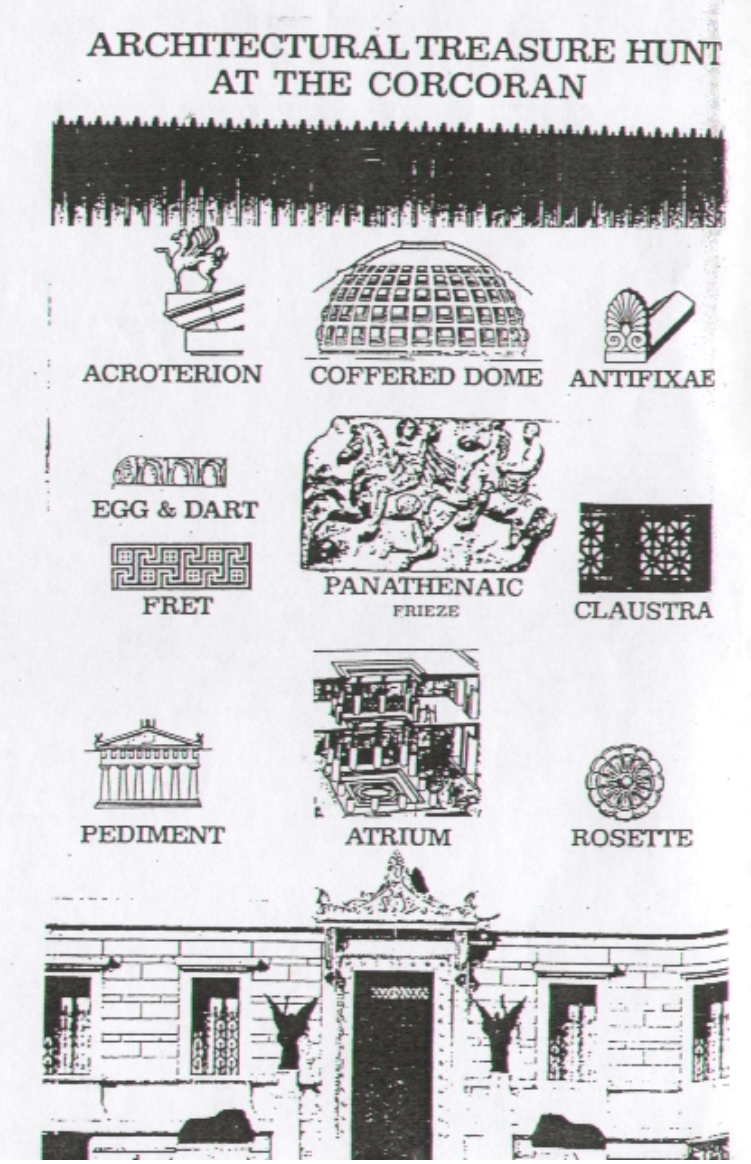
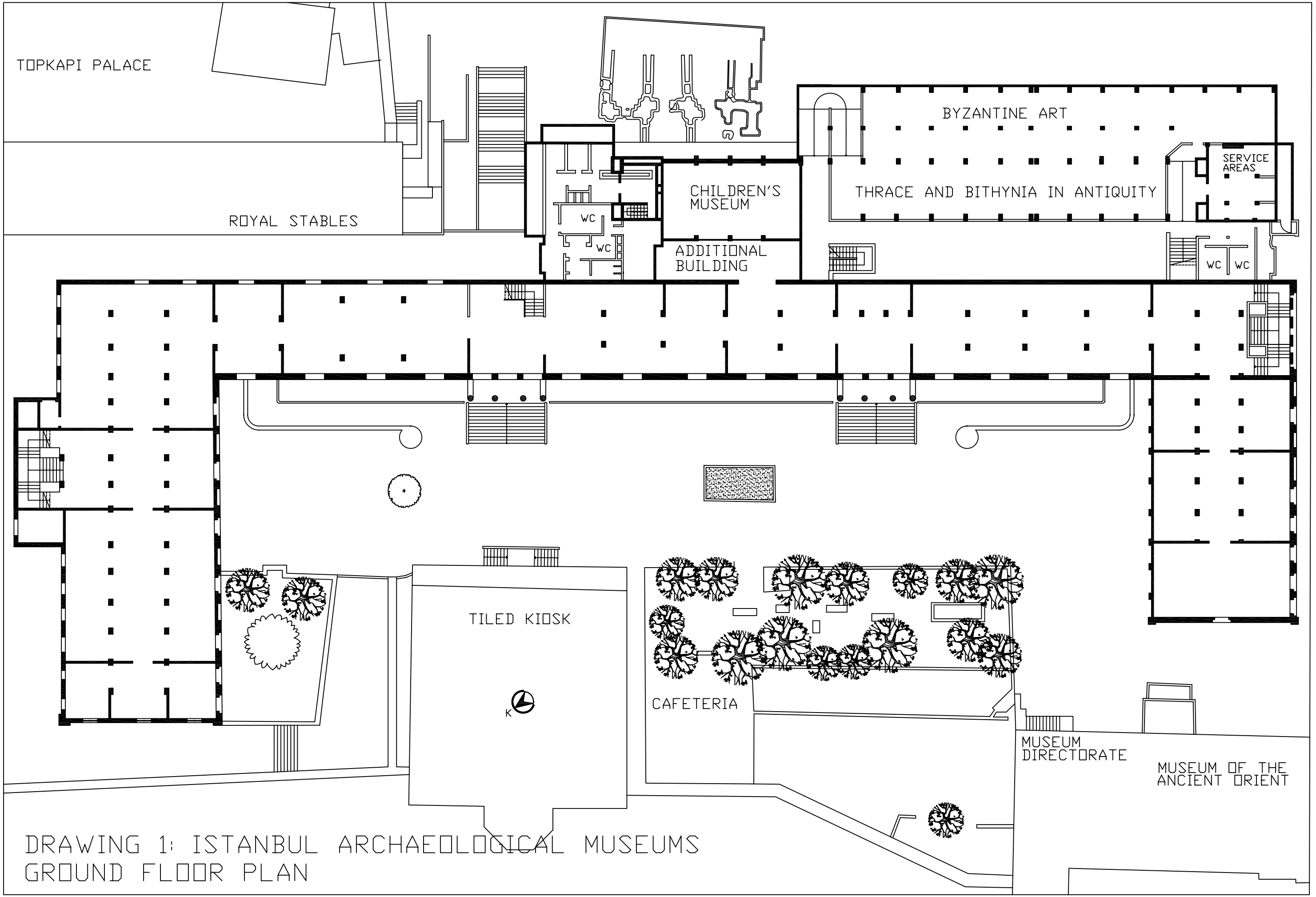


Figure A.3

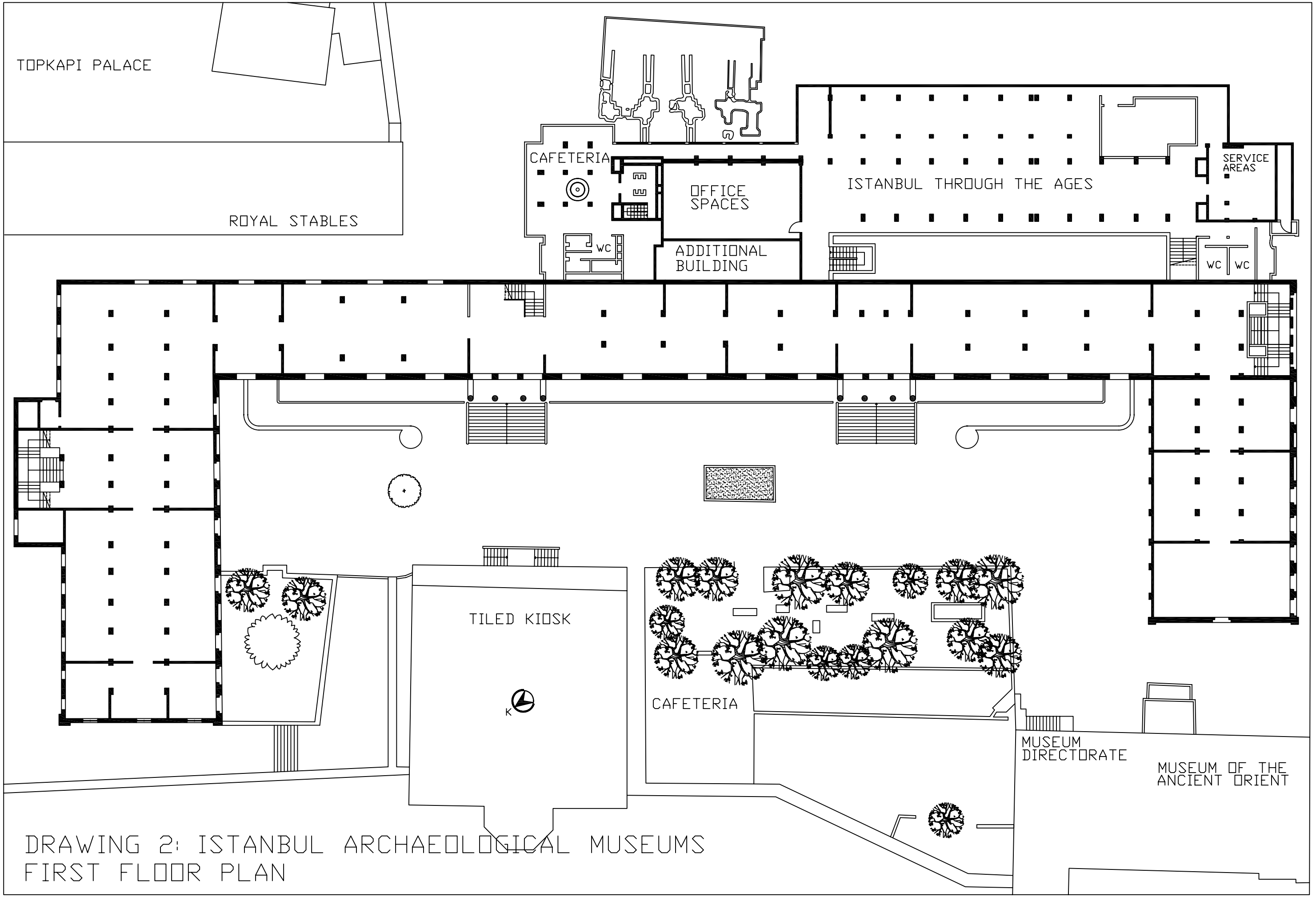
Architectural Treasure Hunt at the Corcoran

(Cohen and McMurtry; 1985)



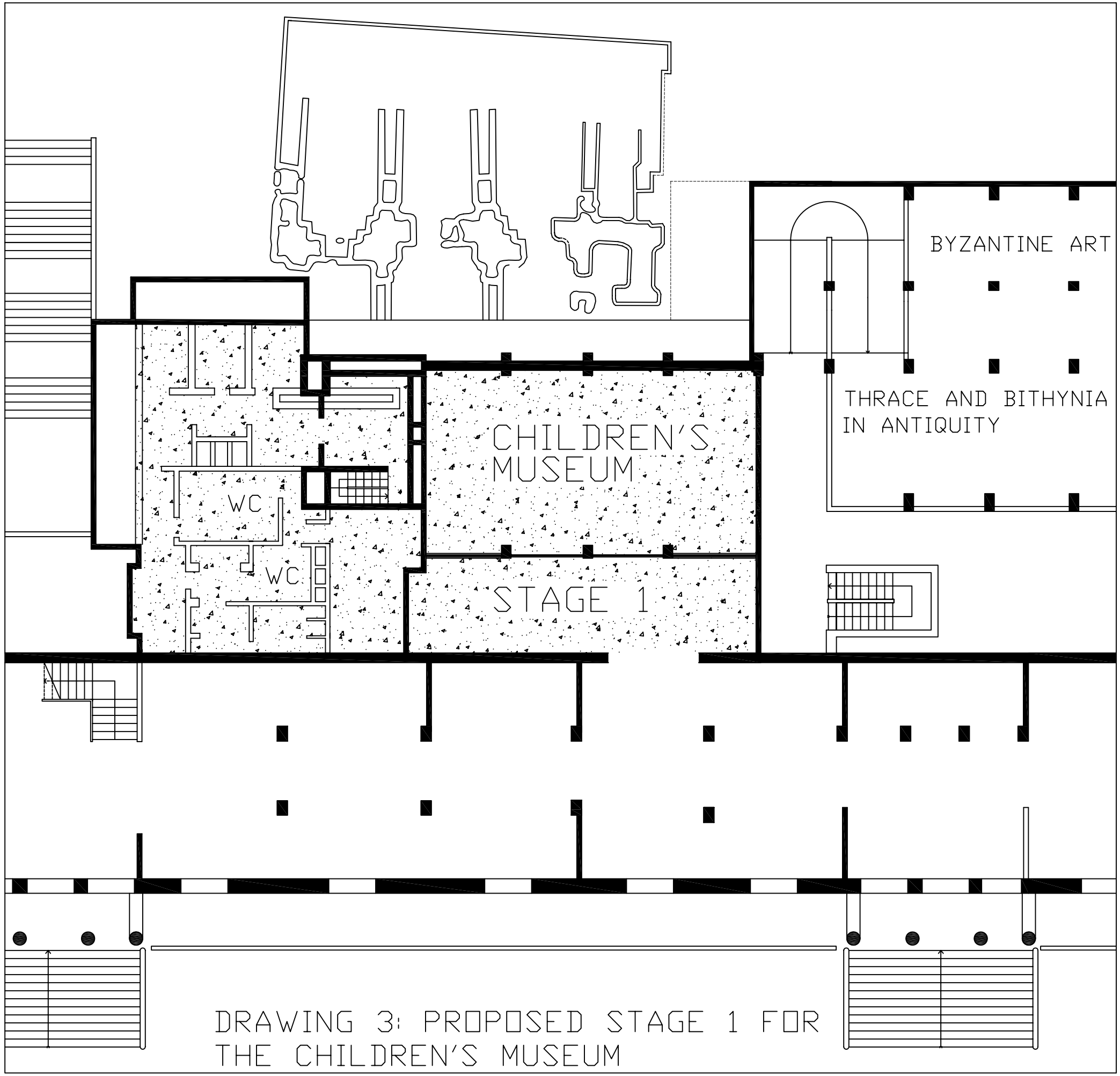
DRAWING 1: ISTANBUL ARCHAEOLOGICAL MUSEUMS
GROUND FLOOR PLAN

DRAWING BY: M. BIGE VARLIER
SCALE: 1/200



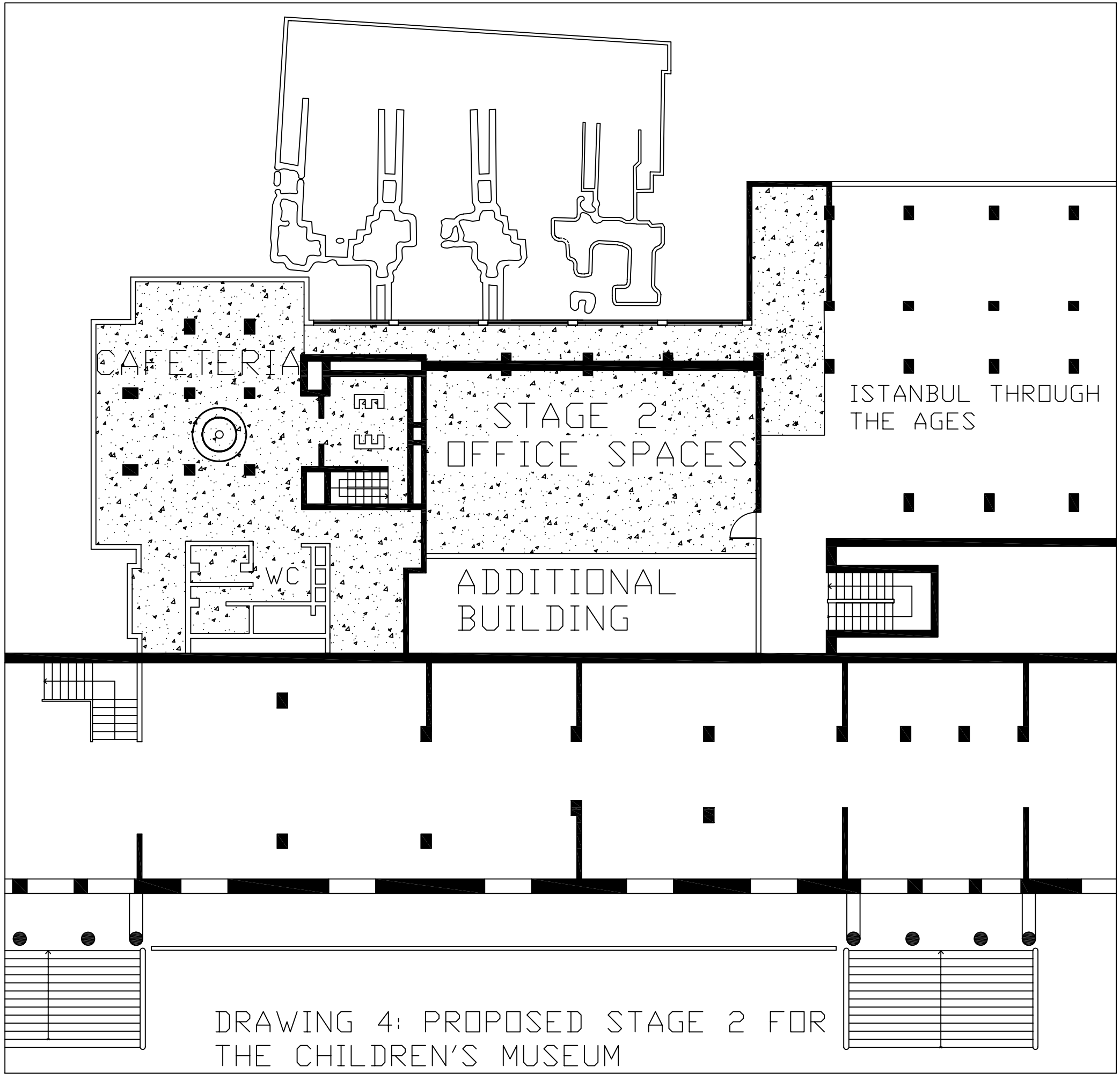
DRAWING 2: ISTANBUL ARCHAEOLOGICAL MUSEUMS
FIRST FLOOR PLAN

DRAWING BY: M. BIGE VARLIER
SCALE: 1/200



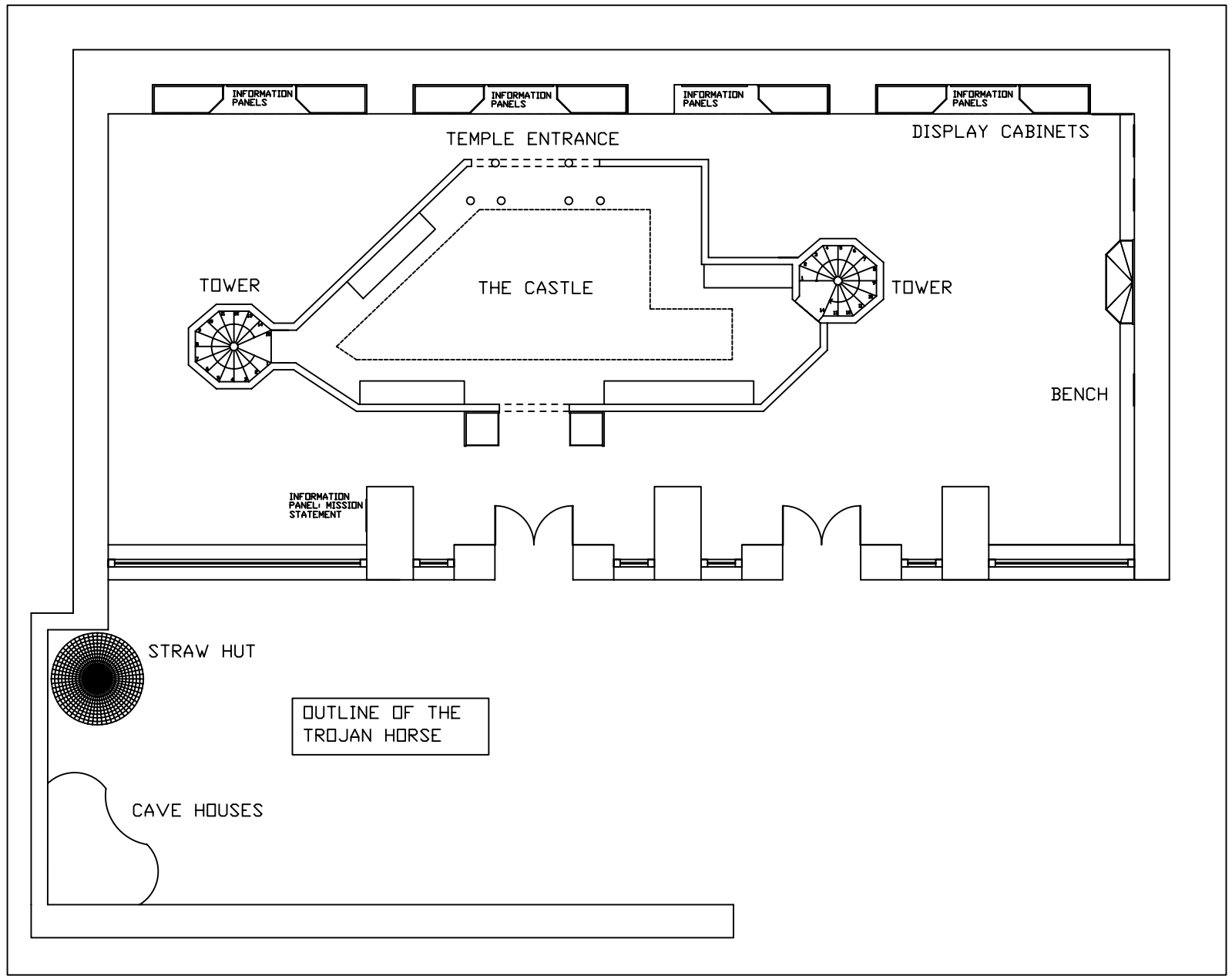
DRAWING 3: PROPOSED STAGE 1 FOR THE CHILDREN'S MUSEUM

DRAWING BY: M. BIGE VARLIER
SCALE: 1/100



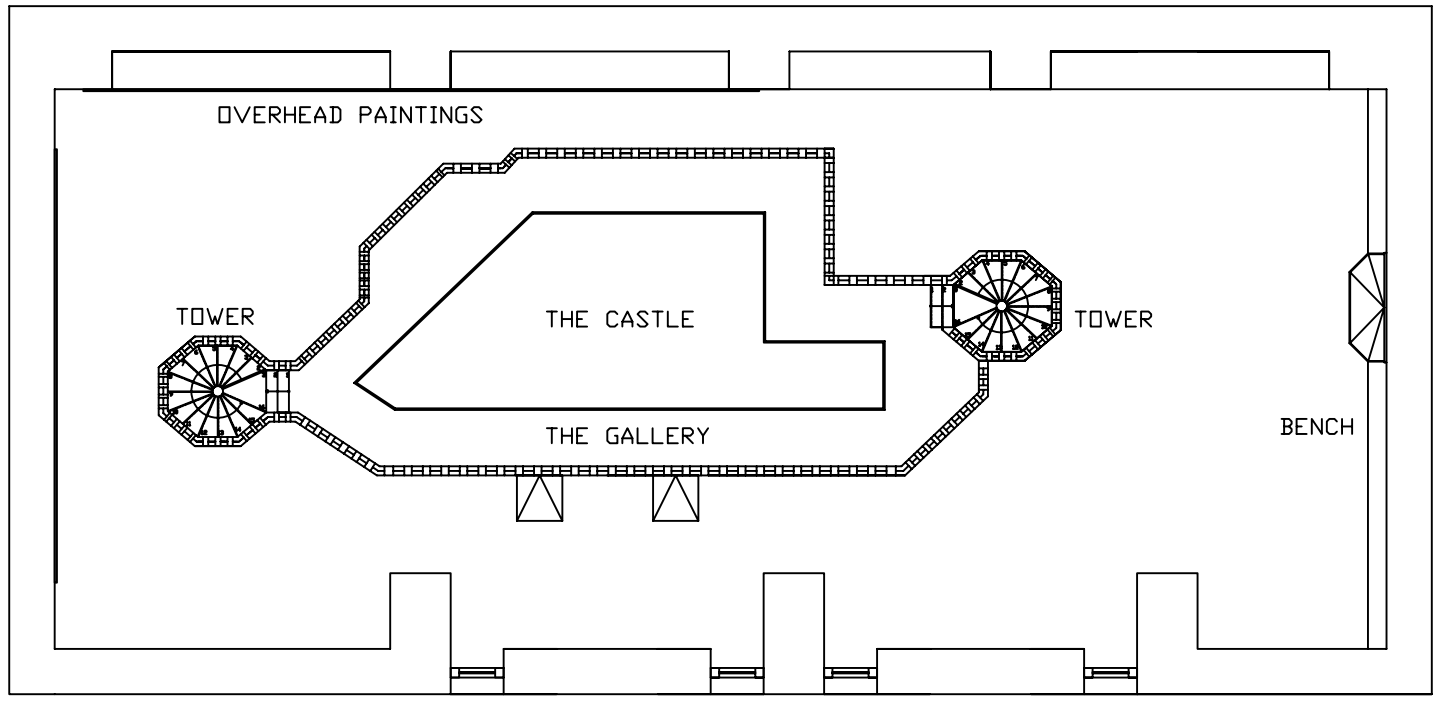
DRAWING BY: M. BIGE VARLIER

SCALE: 1/100



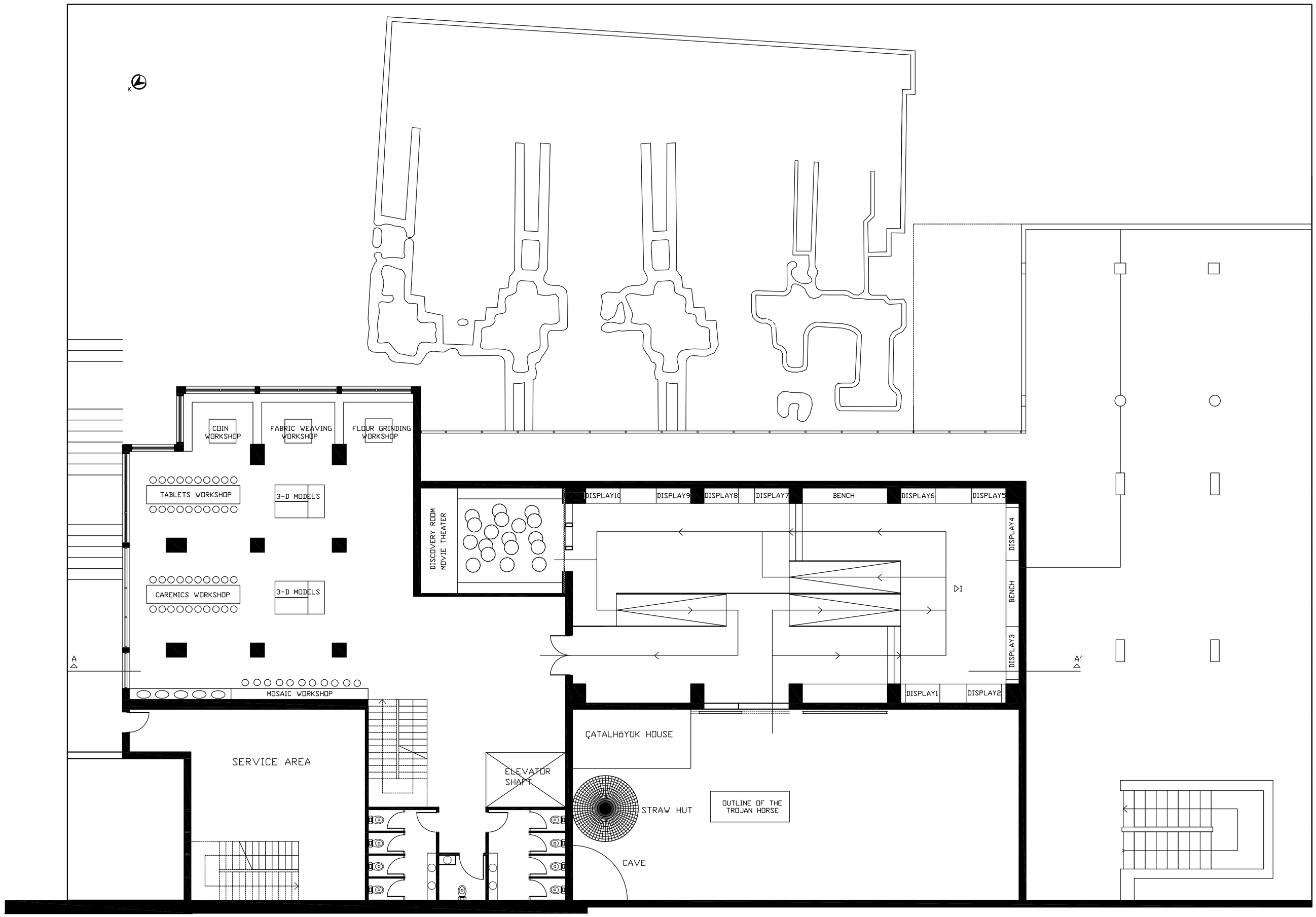
DRAWING BY: M. BIGE VARLIER
SCALE: 1/50

DRAWING 5: CURRENT GROUND FLOOR PLAN OF THE CHILDREN'S MUSEUM



DRAWING BY: M. BIGE VARLIER
SCALE: 1/50

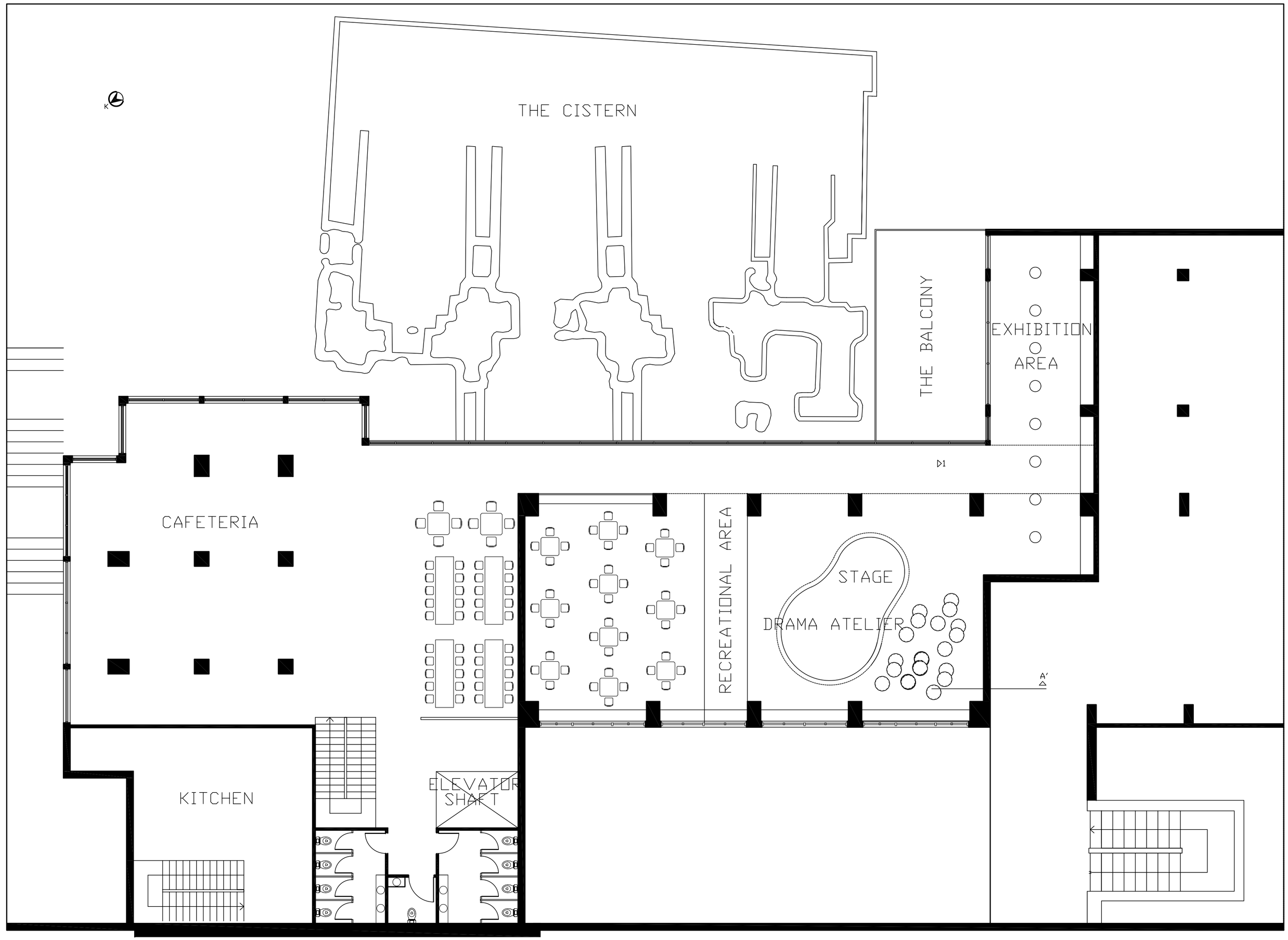
DRAWING 6: CURRENT GALLERY FLOOR PLAN OF THE CHILDREN'S MUSEUM



DRAWING 7: PROPOSED GROUND FLOOR PLAN FOR THE CHILDREN'S MUSEUM

DRAWING BY: M. BIGE VARLIER

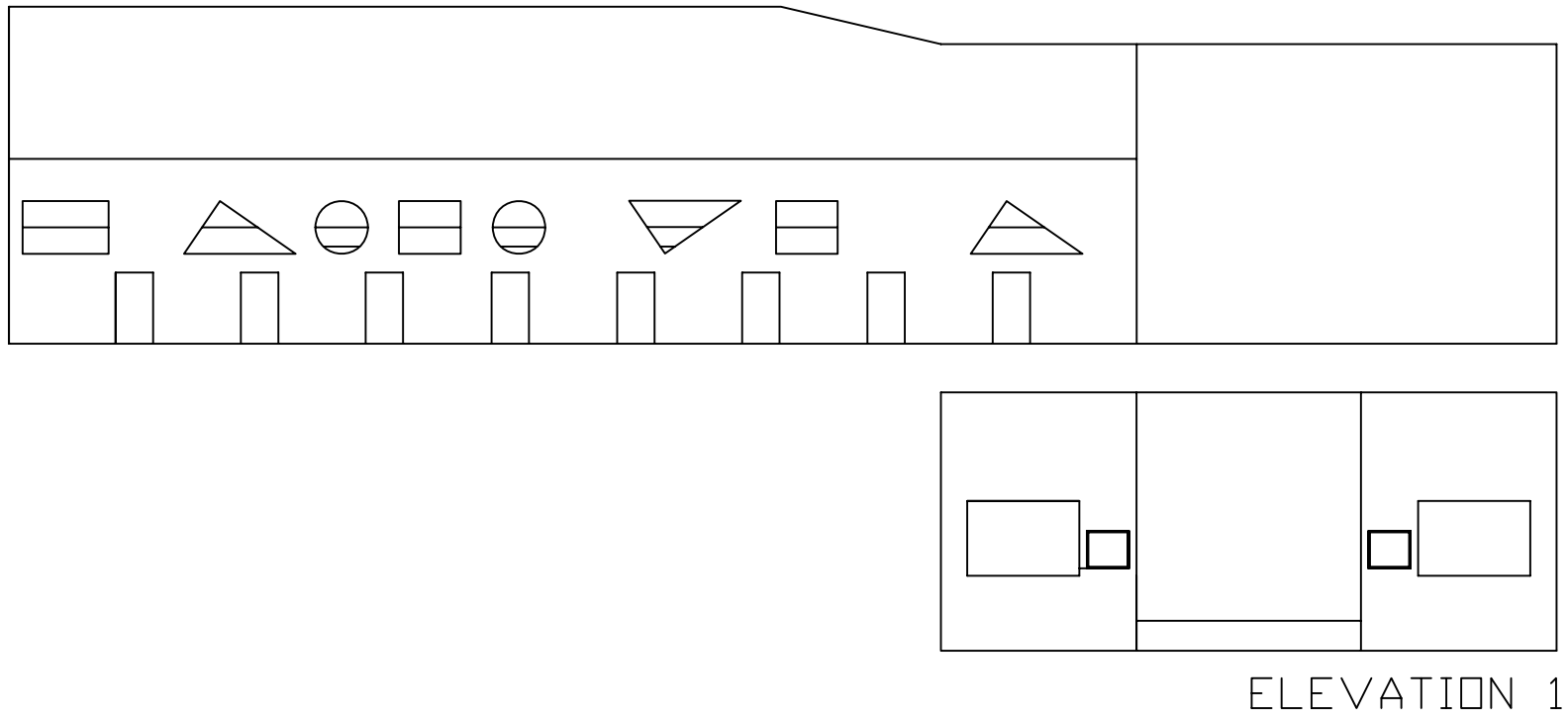
SCALE: 1/50



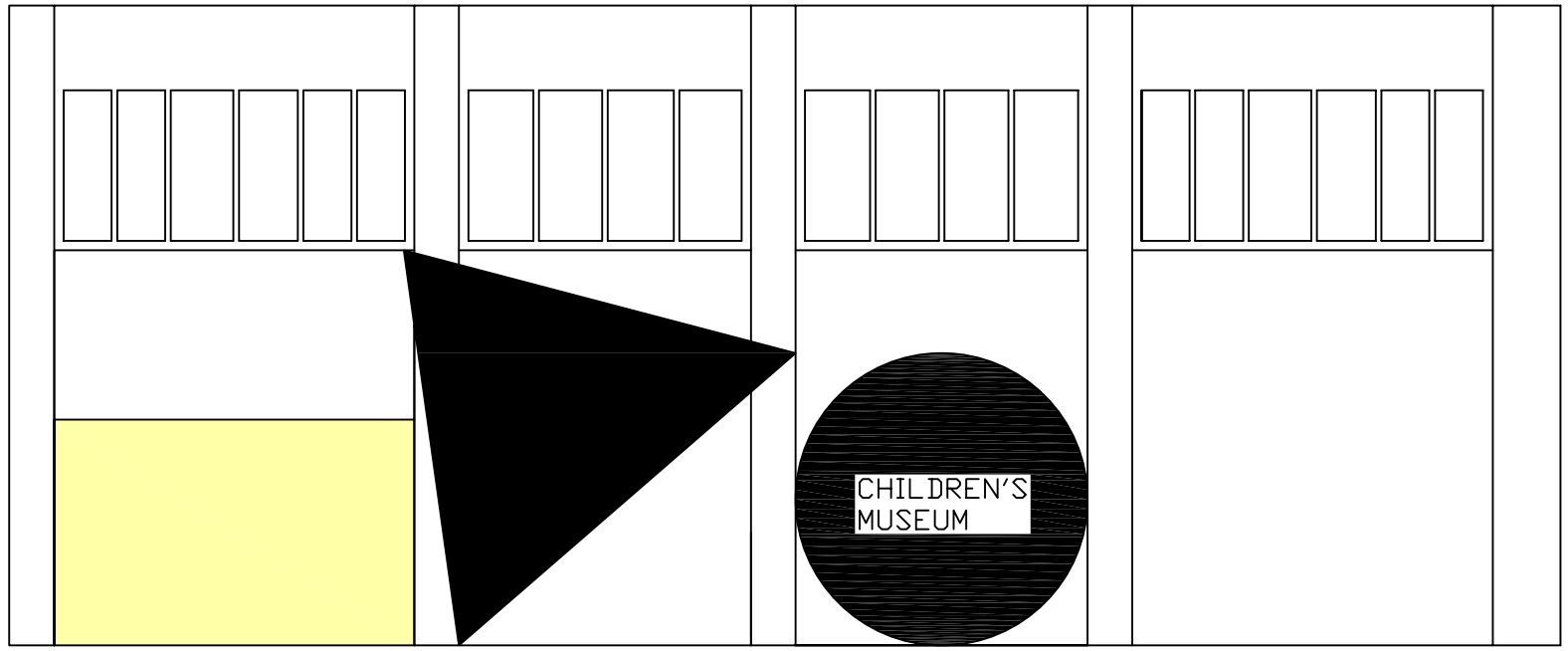
DRAWING 8: PROPOSED FIRST FLOOR PLAN FOR
THE CHILDREN'S MUSEUM

DRAWING BY: M. BIGE VARLIER

SCALE: 1/50



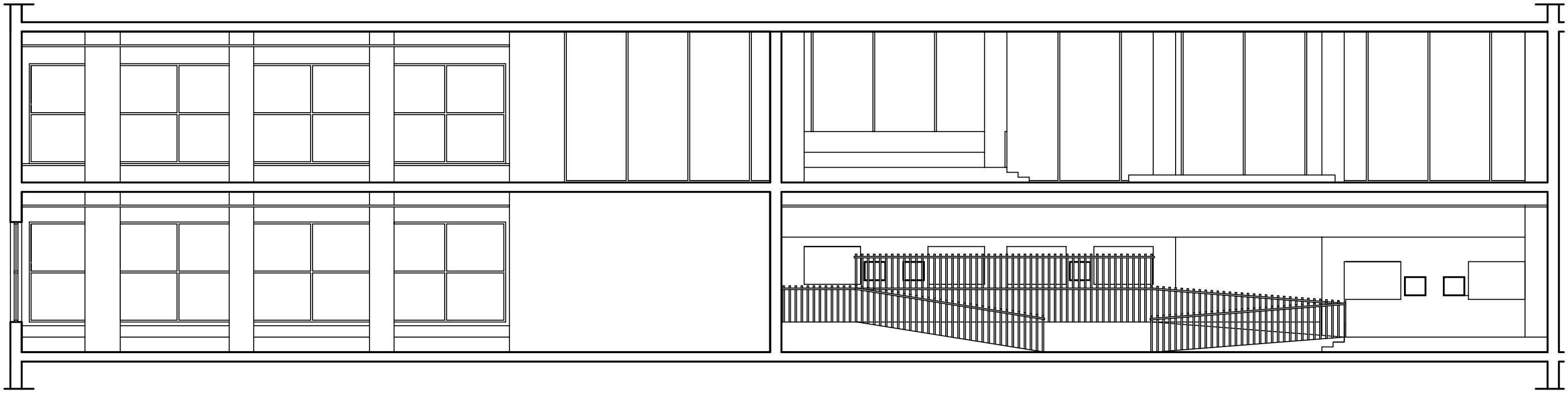
ELEVATION 1



ENTRANCE ELEVATION

DRAWINGS 9-10: PROPOSED ELEVATIONS FOR THE CHILDREN'S MUSEUM

DRAWING BY: M. BIGE VARLIER
SCALE: 1/50



SECTION AA'

DRAWING 11: PROPOSED SECTION FOR THE CHILDREN'S MUSEUM

DRAWING BY: M. BIGE VARLIER
SCALE: 1/50