

*Full Length Research Paper*

# The reflections of the concept of beauty in the religious architecture: The example of the Ottoman period between the 13<sup>th</sup> and 17<sup>th</sup> centuries

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Based on the assumption that religious concepts affect the architecture and therefore, that the concepts have their own inherent languages, this study seeks to find the reflections of the concept of beauty in the religious architecture. In other words, the study attempts to answer the extent of the effect of the concept of beauty on the architectural formation of religious buildings. The concept of beauty and its sub-concepts in the religion have a different language for every designer. This language is presented by the architect semantically and syntactically and the user interprets this construct rather in its semantic aspect. The aim here is to reach from the abstract values to some concrete forms and results. Through semantic and syntactic aspect analyses, this study revealed the effects of the concept of beauty on the formation of religious architecture. The area of research was limited to the concept of beauty in religion and the Ottoman civilization. Examples of religious architecture such as mosques, madrasahs and tombs of a certain Ottoman period were investigated. With this limitation in the building types, 40 buildings about which we have the most data (in terms of plan, vertical plan, appearance, photographs) among the samples of religious architecture were chosen as the sample. In order to figure out the effects of the concept of beauty on the architectural formation, the study employed the basic design principles for their syntactic aspect, and the concept of beauty and its sub-concepts for their semantic aspect. With the analyses of the samples, the indicators of beauty in the building types were presented. Eventually, the contributions of the concept of beauty to the architecture and its effects on the user were interpreted and recommendations regarding the issue under scrutiny were made.

**Key words:** The concept of beauty, space, construction, decoration, structure, syntactic aspect, basic design principles, semantic aspect, emotional reaction aspect, religion.

## INTRODUCTION

It is a well known fact that the factors that affect the architecture are the physical factors (settlement, climate, material, etc.) and cultural factors (the characteristics of people, economy, traditions, religious beliefs, family and society, basic needs, building construction techniques, etc.). It is fairly difficult to distinguish these factors from

each other in the formation and foundation of architecture. It would be a conclusive assumption to say that only one of them is the ultimate determinant in the formation and that each of them affects the architecture on its own. Under the same conditions, sometimes physical conditions and sometimes culture can be effective.

Culture is that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society (Özer, 1993). The interactions between man and culture take place in the environment in which they exist.

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Man realizes this interaction with the environment in which he is through the process of “perception-interpretation-definition” and in this way he takes the first step that will create his formation activity (Aksoy, 1977). The history of man is divided into three important cultural periods. These are the plundering culture, agrarian culture and scientific technology culture. When human beings evolved from one culture to another, they experienced great wars and changes of belief (Turani, 1992; Ataç, 1981; Anonim, 1994, 1970).

Religious culture is kneaded with the symbolic elements that are the common characteristics of cultures. In this respect, such expressions as Egyptian architecture, Hindu architecture, Buddhist architecture, Christian architecture, Islamic architecture, etc. means that the buildings in those cultures were built under the influence of the symbols that are peculiar to the religions in those cultures (Figure 1), (Tümer, 1977; Challaye, 1998; Örnek, 2000; Anonim, 1983, 1972). Architectural forms are of symbolic origin and they are commonly found in cultures that are described as religious. The architect’s use of spatial units where such constructional elements as domes, vaults, arches and columns are built is not because they are the architectural solutions in terms of function and aesthetics. The function and technique have an effect on the formation of these elements in a building, but the structural elements and the main forms and spaces are basically symbolic in terms of both design and use.

Religions have had the function to give individuals psychological peace on the one hand and probably more predominantly, to shape the society on the other. Therefore, despite the different local conditions, it is possible to see a common cultural reflection in the architecture of different societies that believe in the same religion (Table 1), (Akarca, 1972; Roth, 2000; Anonim, 1983; Türkoğlu, 2003; Ceram, 1994; Lloyd, 2003; Sevin, 1982; Schulz, 1983).

When looked from this perspective, the effect of religions on the creation and formation of the architectural environment-environmental elements become inevitable. Religious beliefs are among the cultural factors that shape the architecture and the main purpose of this study is to investigate the effects of these beliefs on architecture. Change and development are unavoidable for a society. Focusing on the values of the past, examining into the components in their formation and revealing the contexts in which they were created will facilitate finding effective solutions for the future. Within this framework, this study aims to investigate the concept of beauty in the religions and its effects on the religious buildings and to put forth the architectural structures based on the concept of beauty (Table 2).

Beauty is one of the fundamental concepts of a religion and is the root cause of the creation of the universe. The divine beauty created the universe when he wished to be known and reflected his endless beauty in all creatures, living and non-living. If someone does a kindness, if

someone thinks and behaves well, this means that he has an image and sign of the Divine Power. Religion is a center of beauties which was created by man and it is presented as a reference to God who is the only and who loves everything which is good. Beauty is the perfection of design. And for this reason, it has a molding effect on the attempts of man (Dickie, 1996; Haydar, 1991).

The ornaments in the works of art are based on their symmetries, eye-catching colours and elegant and varying forms, as such, they present the spectator an additional dimension of beauty. For, a figure or a story that expresses tawhid (unification) is an expression of the truth and beauty for the members of that religion. Then, this is also an expression of beauty with a stronger justification (Raci El-Faruki and Lamia El-Faruki, 1999). The colourful and bright world of such attitudes and feelings as happiness and being hopeful and joyful are the common characteristics of religious architectural arts (Cansever, 1997).

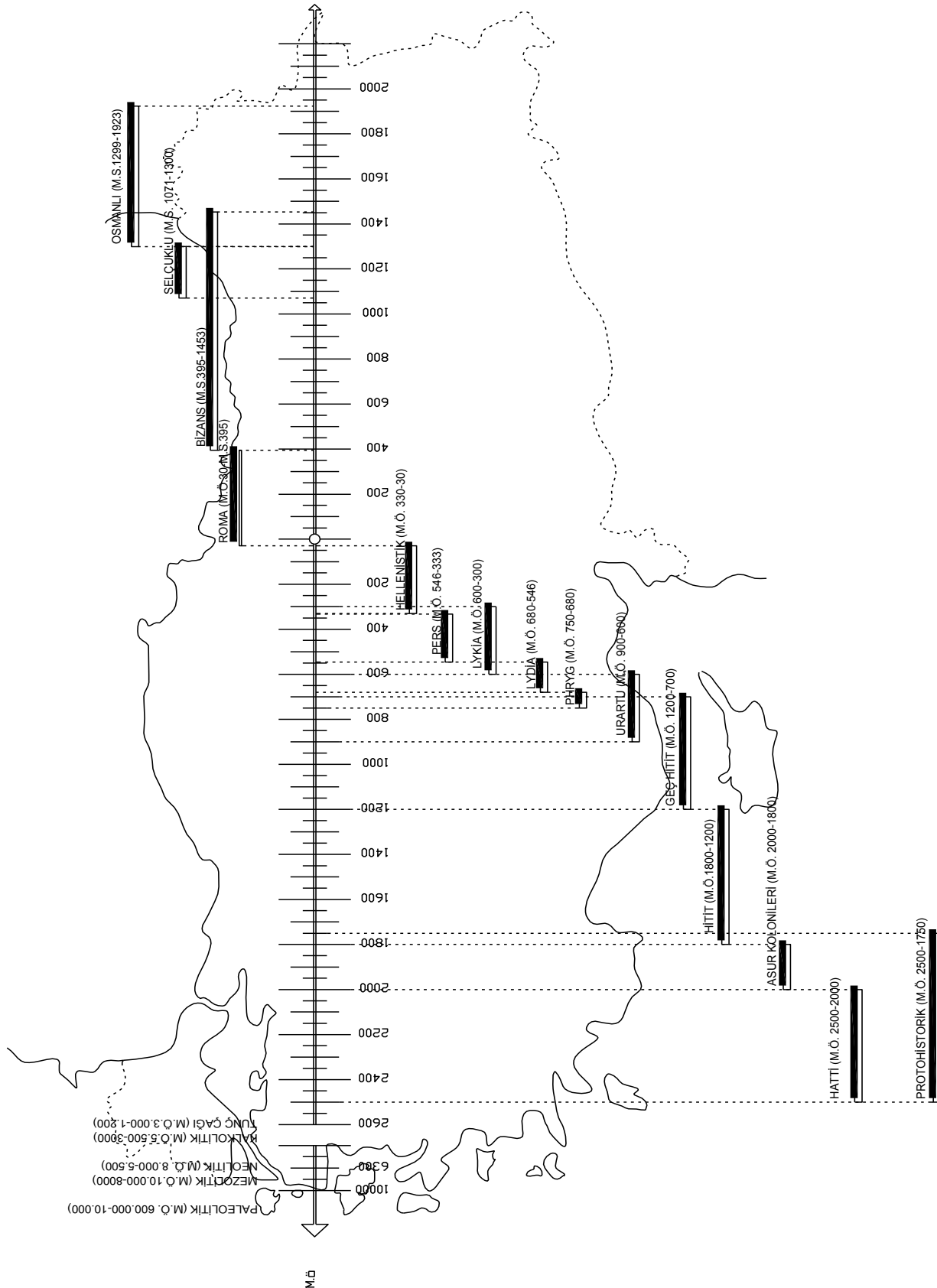
The aim of the religion of Islam is to make the world and the environments in which human beings live more beautiful. Since the aim is to create a more beautiful world, those who created these cities in the past tried to create them like parts of the paradise. While architecture addresses all human beings with all its beauties, it should take into consideration both the needs of man and the regional characteristics. The decorations, in a rich variety of colour, are the products of the will of art that aim to beautify the world (Cansever, 1994; 1997). The formal richness here is the result of an attitude which introduces beauty to man and which aims to make man experience a beautiful world.

## MATERIALS AND METHODS

### Field of study

This study covers the Ottoman period in Anatolia between the 13<sup>th</sup> and 17<sup>th</sup> centuries, and the concept of beauty in Islam. In general, the Ottoman architecture is studied in four different main periods as: the Early Period / the Period Before Sinan, the Architecture / the Period of Sinan, the Architecture / the Westernization period. The Early Period lasted from 1501 to the beginning of the classical period. The 16<sup>th</sup> century was the classical period and was marked by Sinan, the Architecture and at the end of the 16<sup>th</sup> century, the neo-classical period started with the Sultan Ahmet Mosque (1609 to 1616). This period was affected by the then-current movements in Europe, has the characteristic of a transitional period and was followed by the last period which was affected by such artistic movements in Europe as baroque, rococo, empiricism, eclecticism and neo-classicism. This period lasted until slightly after the foundation of the Republic of Turkey. In later periods, modern architectural movements became influential (Çoruhlu, 1993, 2000). Ünsal (1996) has identified the Ottoman architectural styles as:

1. 1299 to 1501 The Bursa (Early) period,
2. 1501 to 1703 The Classical period,
3. 1703 to 1730 The Tulip period,
4. 1730 to 1808 The Turkish Baroque,
5. 1808 to 1908 The Cosmopolitan period,
6. 1908 to 1923 The Neo-Ottoman period.



**Figure 1.** Fields and periods of work.  
 Note: M.Ö. refers to B.C.; M.S. refers to A.D.

**Table 1.** Architecture in monotheist and polytheist ages.



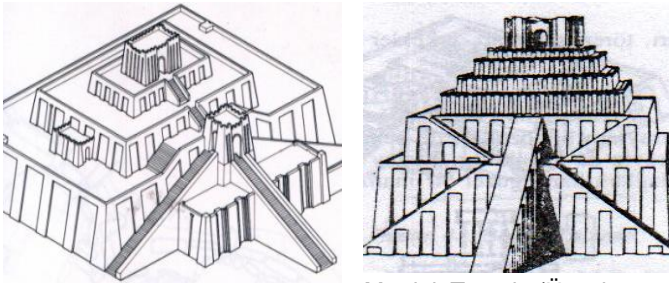
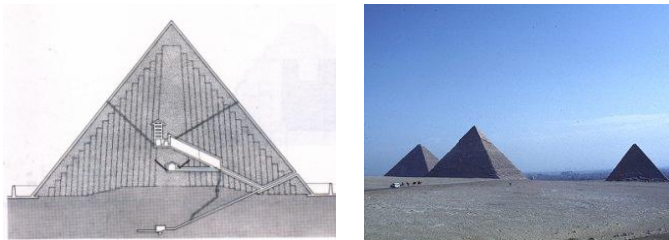
	Features	Examples
Architecture in polytheist ages	<p>Paleolithic Age (B.C. 600.000-10.000)</p> <p>Concrete, analogical, associate, magical, symbolic thinking and the classifier (Tanilli, 1994, Şenel, 1996, Mutlu, 2001).</p>	 <p>Deer heads, Lascaux Cave, France (Anonim, 1983)</p> <p>Bulls and deers, Le Portel Cave, France (Anonim, 1983)</p>
	<p>(Neolithic) (B.C. 8.000 – B.C.5.500)</p> <p>Transition to religious thinking and civilization, from magical thinking and primitive society (Şenel, 1996, Mutlu, 2001). (<a href="http://www.savestonehenge.org.uk/actnow.html">www.savestonehenge.org.uk/actnow.html</a> 19.03.2003.)</p>	 <p>Stonehenge (Stierlin, 1997).</p> <p>Megaliths(Stonehenge)</p>
	<p>Mezopotamia</p> <p>Religious opinion, impersonation of natural powers, concern of immortality is not seen. Showiness and splendiddness, is all for our world (Turani, 1992).</p>	 <p>Mezopotamia, zigurat, Ur (Stierlin, 1997).</p> <p>Marduk Temple (Ünsal, 1996).</p>
	<p>Egypt</p> <p>Egyptian architecture; A mathematical attention, enormousness of the sizes and obliqueness of the forms. With these convincing the human being that he is immortal (Turani 1992, Schulz 1983). (<a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi">www.arkitera.com/webrehberi/mimarlikvesanattarihi</a> 18.03.2003.)</p>	 <p>Gizza, pyramite Keops (Roth, 2000).</p> <p>Gizza,pyramite</p>

Table 1. Contd.

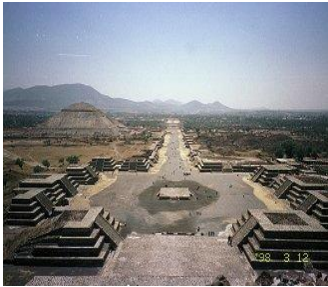



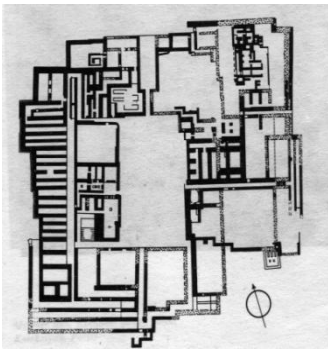

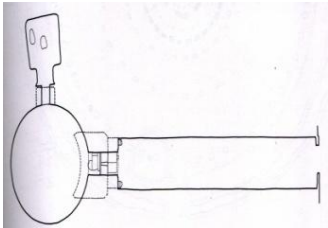
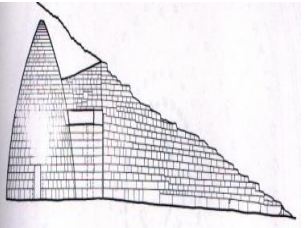
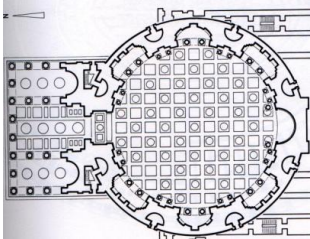


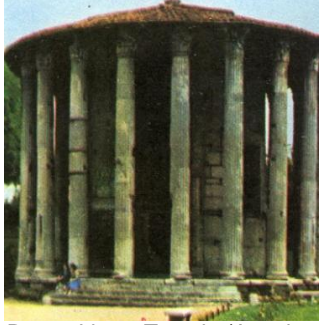





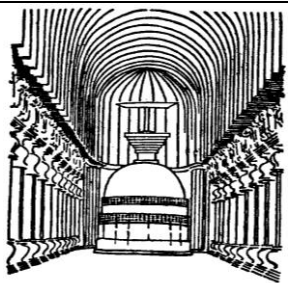
Architecture in polytheist ages	Ancient America	Aztecs, Incas and Mayas are establishers of big states. Aztec architectural structures has pyramidal shape, steep stairs. Mayas has graded pyramites (Turani, 1992).		
		Maya Civilization, Teotihuacan ( <a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi">www.arkitera.com/webrehberi/mimarlikvesanattarihi</a> 18.03.2003.)	Maya Civilization, Teotihuacan ( <a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi">www.arkitera.com/webrehberi/mimarlikvesanattarihi</a> 18.03.2003.)	
	Crete	Inca cities were melancholic. Residences and temples just near-by the palace (Turani, 1992).		
		Maya civilization, Tikal ( <a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi">www.arkitera.com/webrehberi/mimarlikvesanattarihi</a> 18.03.2003.)	Maya civilization, Tikal ( <a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi">www.arkitera.com/webrehberi/mimarlikvesanattarihi</a> 18.03.2003.)	
Mycenean	Civillian architecture developed, temples did not (Mutlu, 2001).			
	Crete, Konosos Palace plan (Anonim, 1983)	Crete, Konosos Palace (Anonim, 1983)		
Mycenean	Mathematical abstraction in mycenean art as formal strength, appears up like the art of a warrior nation (Turani, 1992, Mutlu, 2001).			
	Mycenean, Atreus Tomb (Stierlin, 1997).	Mycenean, Atreus Tomb (Stierlin, 1997).		

Table 1. Contd.

Architecture in polytheist ages	Persian	Fire, soil and water deemed as holy. So in order not to contaminate them, they give the dead bodies to animals (Mutlu, 2001).		
	Kirus Tomb (Pazargad)(Ünsal, 1996).	Neisar fire altar (Ünsal, 1996).		
	Transition from mythology to philosophy (Şenel, 1996).			
	Parthenon plan (Roth, 2000).	Parthenon Temple		
Greek	Everywhere they searched for ideal symetri (Roth, 2000).			
	Erechtheion plan, akropolice (Roth, 2000).	Erechtheion		
Religious architecture; temple, altar, tomb. Civillian aearchitecture; Agora and Portico, closed meeting halls, teathers, odeon, stadium, fountains, cesidences, castles (Mutlu,2001). <a href="http://johnpaulheil.com/turkey.htm">http://johnpaulheil.com/turkey.htm</a> 20.03.2003).				
Zeus Temple, Olympia, Greece (Roth, 2000).				

Table 1. Contd.

Architecture in polytheist ages	They have a unique place in history as planners and organizers (Turani, 1992). ( <a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi">www.arkitera.com/webrehberi/mimarlikvesanattarihi</a> 18.03.2003).		
	Pantheon (Stierlin, 1997).	Pantheon	
	Religious Architecture; temple, tombs, Civillian Architecture; Basilica, triumphal arch and columns, bath, palace and residences, social building, Teathers, amphiteatre circus, Public servises; roads, bridges, water arches,sanitary sewage, Millitary; castles,city walss (Mutlu, 2001).		
	Rome, Fortuna Virile Temple (Anonim, 1983)	Rome, Vesta Temple (Anonim, 1983)	
	After christianity churhes inherited their form from Roman basilica (Turani, 1992).		
	Maison Carree (Anonim, 1983)	Maison Carree (Anonim, 1983)	
Architecture, sculpture and then drawing arts developed in caverns. Can be said that Indian architecture is a structural art that takes the form of sculptures (Turani, 1992).			
HoysalaTemple( <a href="http://www.kamat.com/kalranga/architectureIndian">www.kamat.com/kalranga/architectureIndian</a> Architecture. 17.03.2003).	Sringeri Vindyaranya Temple, India( <a href="http://www.kamat.com/kalranga/architecture">www.kamat.com/kalranga/architecture</a> Indian Architecture. 17.03.2003).		
Indian architecture is not concerned with space. Can be seen that inside and outside of the structure is unrelated (Turani 1992).			
Buddhist Chaitya, Karli, India (Seckel, 1964).	Buddhist Chaitya, Karli, India (Seckel, 1964).		

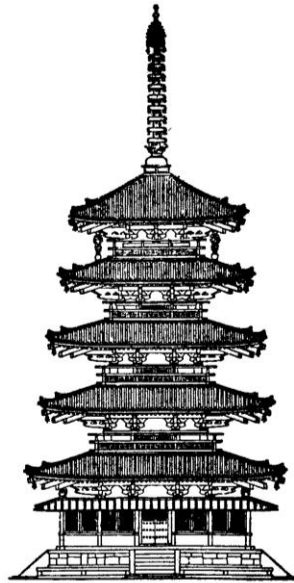
India

Table 1. Contd.

Architecture in polytheist ages

Japan

Sintoism, Budism, Confucianism were among the common beliefs. Temples are square shaped. Pagodas are multi floored and protruded out (Anonim 1983).



Pagoda, 7. Cent (Seckel 1964).

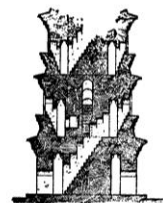
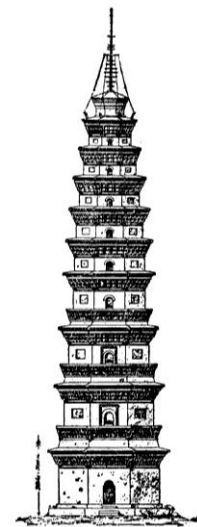
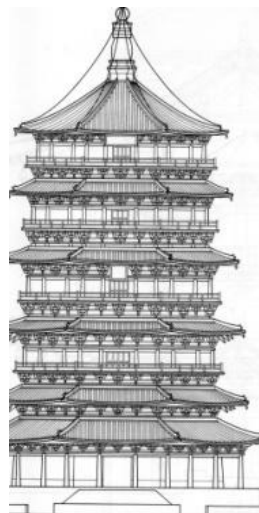
God-king cult of the Shang dynasty, Teory of son of the skies and sky-earth relation of Chu dynasty, Corrosion of beliefs during time of combating states and the rise of news phylosophies, Confucianism, phylosophy of Lao-Che is seen (Şenel 1996).



Chinese Temple (Stierlin 1997). Chinese Temple (Stierlin 1997).

China

Most prominent feature of the Chinese architecture is construction principles remain unchanged during centuries. In China there are pagodas related with Budha. They are in shape of square, hexagon, octagon. Circular plan pagoda is not seen (Turani 1992).



China, Shi Chia Pagoda, Fo Kung Temple (Stierlin 1997).

Pagoda, 8.cent (Seckel 1964).



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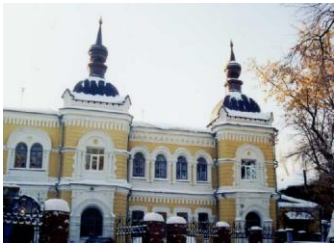



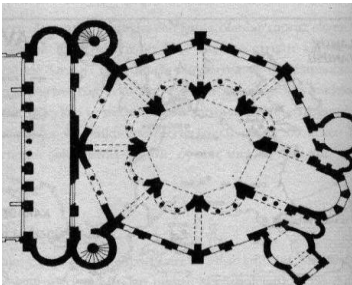
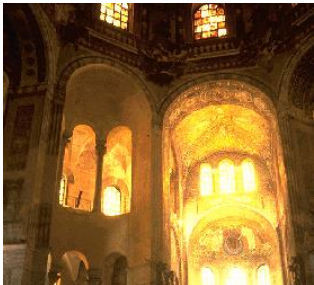


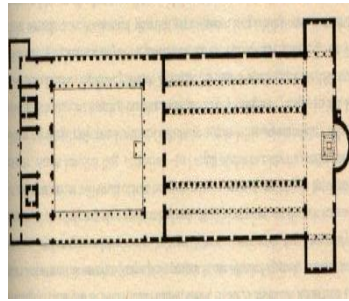
	<p>The place where the Jewish pray is called Synagogue. They are places for praying, socialization and education (Türkoğlu, 2003).</p>	 <p>Nizhniy Synagogue (<a href="http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Nijniy Nijniy. 11 Kasim 2005">http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Nijniy Nijniy. 11 Kasim 2005</a>).</p>	 <p>(<a href="http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagog-Moskva2 Moskva. 11 Kasim 2005">http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagog-Moskva2 Moskva. 11 Kasim 2005</a>).</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Architecture in polytheist ages</p>	<p>Judaism Synagogue; Besides main praying hall also contains a small one and Torah, a rabbi room, a water resource like fountain or cistern, toilet...etc (Turani, 1992).</p>	 <p>(<a href="http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Kharkov_Sinagoga9 Kharkov. 11.11.2005">http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Kharkov_Sinagoga9 Kharkov. 11.11.2005</a>).</p>	 <p>Penza Synagog (<a href="http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Penza Penza. 11.11.2005">http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Penza Penza. 11.11.2005</a>).</p>
	<p>Churches are built in form of three nave because of trinitarianism (Combrich, 1992).</p>	 <p>San Vitale, Ravenna, Italy (Roth, 2000).</p>	 <p>Byzantine Church, San Vitale (<a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi 18.03.2003">www.arkitera.com/webrehberi/mimarlikvesanattarihi 18.03.2003</a>).</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Christianity</p>	<p>Plan resembles the crucified Jesus. Decoration is rich in symbolism. Church is the residence of God (Bammatt 1987).</p>	 <p>Byzantium monastery, Delphoi, near by Athens</p>	 <p>Laon (<a href="http://www.arkitera.com/webrehberi/mimarlikvesanattarihi 18.03.2003">www.arkitera.com/webrehberi/mimarlikvesanattarihi 18.03.2003</a>).</p>

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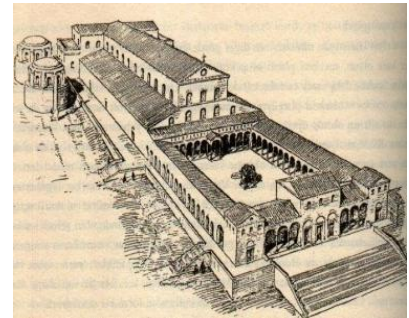
Architecture in polytheist ages

Christianity

In the half circular space called Abscissa, altar was located where all the faithful turn their looks (Combrich 1992).



Saint Peter Basilica plan (Roth 2000).



Saint Peter Basilica perspective (Roth 2000).

The place that allocated for the altar is called choro, where the community gathers is called nave (Combrich 1992).

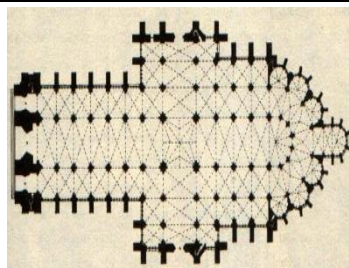


Bizantium churc, Sant Apollinale, Classe  
([www.arkitera.com/webrehberi/mimarlikvesanattarihi](http://www.arkitera.com/webrehberi/mimarlikvesanattarihi) 18.03.2003).



Bizantium church, Sant Apollinale, Classe  
([www.arkitera.com/webrehberi/mimarlikvesanattarihi](http://www.arkitera.com/webrehberi/mimarlikvesanattarihi) 18.03.2003).

In the churh, behind the high altar where the priest conducting the divine service stands, around him there should be a community to carry out their holy duty (Combrich 1992).

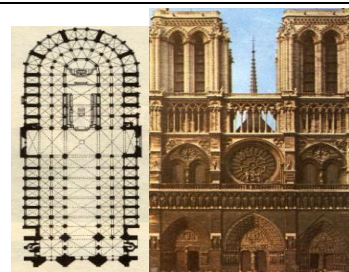


Notre-Dame de Amiens plan (Roth 2000).



Notre-Dame de Amiens, Gothic Cathedral (Amiens)  
([www.arkitera.com/webrehberi/mimarlikvesanattarihi](http://www.arkitera.com/webrehberi/mimarlikvesanattarihi) 18.03.2003).

Stem stands like a heavy sculpture. In this heavy structure there were symbolism of spreading of religion among the earth and regarding the earth (Turani 1992).


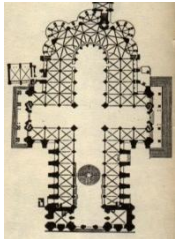
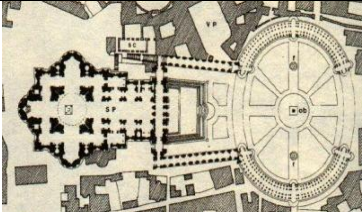


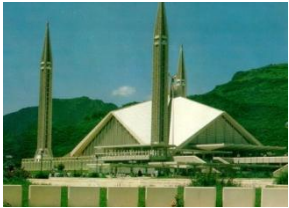


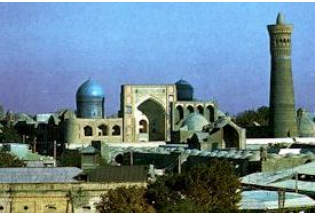
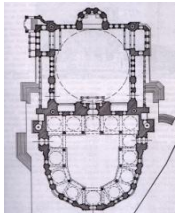


Notre-Dame front facade and plan (Anonim 1983).



Romanesk architecture, Duoma, Pisa  
([www.arkitera.com/webrehberi/mimarlikvesanattarihi](http://www.arkitera.com/webrehberi/mimarlikvesanattarihi) 18.03.2003).

Table 1. Contd.

Architecture in polytheist ages	Christianity	In Catholicism for every priest it was necessary to make one divine service. So altars should increase in number (Turani, 1992).			
		Chartles Cathedral general view (Anonim 1983).	Chartles Cathedral plan (Anonim 1983).		
	One point which approves that, cathedrals are under a miracle influence. Stones look like has no structural function and rise in the air (Turan, 1992).				
	S.Pietro plan (Roth 2000).	Renaissance era, S. Pietro, ( <a href="http://www.arkitera.com/webrehberi/marlikvesanattarihi">www.arkitera.com/webrehberi/marlikvesanattarihi</a> 18.03.2003).			
	Architecture in monotheist ages	Islam	In Islamic culture there is no contrast between religious and civil art (Anonim, 1983). Because of hor climates main aim was creating well air conditioned places (Enön, 1987).		
			Lahore, Pakistan ( <a href="http://www.searchindia.com/search/Society/Religion/Islam/index.shtml">http://www.searchindia.com/search/Society/Religion/Islam/index.shtml</a> Islam. 18.03.2003).	Islamabad, Pakistan ( <a href="http://www.searchindia.com/search/Society/Religion/Islam/index.shtml">http://www.searchindia.com/search/Society/Religion/Islam/index.shtml</a> Islam. 18.03.2003).	
Main theme of Islamic architecture is mosque (Turani, 1992).					
Jerusalem ( <a href="http://www.searchindia.com/search/Society/Religion/Islam/index.shtml">http://www.searchindia.com/search/Society/Religion/Islam/index.shtml</a> Islam. 18.03.2003).	Tacmahal, Hindistan ( <a href="http://www.sscnet.ucla.edu/southasia/Culture/Archit/TajM.html">http://www.sscnet.ucla.edu/southasia/Culture/Archit/TajM.html</a> Taj Mahal. 23.03.2003).				
Mosque usually constitutes of a square court, surrounded by column porches and in the middle there is a fountain system. And at least one minaret (Anonim, 1983) ( <a href="http://pc12.soc.metu.edu.tr/bolum/bolum015.htm">http://pc12.soc.metu.edu.tr/bolum/bolum015.htm</a> Buhara. 25.03. 2003).					
Buhara	Nuruosmaniye Mosque, İstanbul (Aslanapa 1993, Kuban 1988).				

**Table 2.** The Civilizations and Architecture in Anatolia



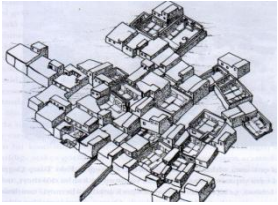


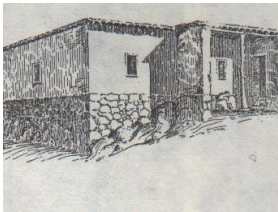
Ages and the Civilizations	Features and examples		
<b>Paleolithic Age</b> (B.C. 600.000-10.000)	There is nomadic life (Akyıldız, 1997). They utilized natural caves, shelters under the rock and the very primitive shelters made of bough, brushwood and animal pelt outdoors as residence (Sevin, 1999).		
<b>Mesolithic</b> (B.C. 10.000-8.000)	There is not any considerable change compared to Chipped Stone Age from lifestyle point of view. The original finds are geometric-shaped small tools made of flint stone, called 'Microlith' (Akyıldız, 1997).		
<b>Neolithic</b> (B.C. 8000-5500)			
	Mural (Sevin,1999).	Chatalhoyuk ( <a href="http://www.geocities.com/izkir/arkeoloji.htm">www.geocities.com/izkir/arkeoloji.htm</a> Arkeoloji.18.03.2003)	Chatalhoyuk (B.C. 6000) (Lloyd, 2000).
<b>Chalcolithic Age – Copper Age – Mining Age</b> (B.C. 5.500-3.000)	Stone and earth is replaced by copper instruments. Kitchenwares are adorned with paint (Sevin, 1999). The houses have a rectangular plan and usually a single room (Akyıldız, 1997).		
<b>Bronze Age</b> (B.C. 3000-1200)	Development of mining resulted in city life depending on labour division (Akyıldız, 1997).		
<b>Hattian Civilization</b> (B.C. 2500-2000/1700)	Goddess, at Hattians known as Vureshuma (Sevin, 1999). They are the local people of Anatolia. Unique styles of rich adornments in handworks are seen in animal figures and sun disk (Lloyd, 2000).		
<b>Assyrian Colonies</b> (B.C. 2000-1800)	Cylinder and stamp seals, animal and human figures, animal shape drinking pots represents the art of the age (Lloyd, 2000).		
	Well progressed in sculpture, reliefs and architecture. Their mainstay is agriculture and livestock (Http://Serhatyeniceri.Sitemynet.Com/Ilkcag/Anadolu.Htm Anadolu Tarihi. 23.03.2003). Temple plans are not same. But entrance and cult room doesn't change (Lloyd, 2000).		
	Military	Religious	Civil
<b>Hitit Civilization</b> (B.C. 1800-1200)			
	Lion Gate, Bogazkoy ( <a href="http://www.geocities.com/izkir/arkeoloji.htm">www.geocities.com/izkir/arkeoloji.htm</a> Arkeoloji.18.03.2003).	Eflatunpınar rock monument (Dincol, 1982).	Bogazkoy, residence (Dincol, 1982).
<b>Late Hittite</b> (B.C. 1200-700)	City gates, palaces, some of the governmental buildings are adorned with orthostatic reliefs and hieroglyphs (Lloyd, 2000).		
<b>Urtian</b> (B.C. 900-600)	For settling choiced places like high mountains and steep cliffs for ease of defence. In architecture they did palaces, castles, irrigation channels (Akyıldız, 1997).		

Table 2. Contd.

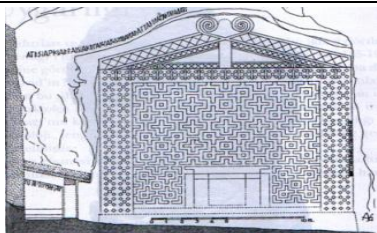
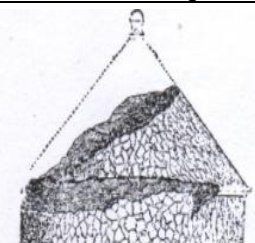
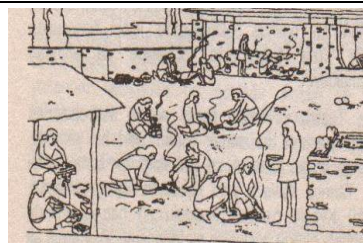


	<p>They kept the Hittite traditions living and adopted themselves to the unique culture of Anatolia. Bodies were buried in caved in graves in rock. They were polytheists (<a href="http://Serhatyeniceri.Sitemynet.Com/Ilkcag/Anadolu.Htm">http://Serhatyeniceri.Sitemynet.Com/Ilkcag/Anadolu.Htm</a> Anadolu Tarihi. 23.03.2003)</p>		
<p><b>Phryg</b> (B.C. 750-680)</p>	<p>Millitary</p>	<p>Religous</p>	<p>Civil</p>
		<p>Midas Tomb: Holy place nearby Yortan. In Chorum, rock tomb in Kumbet Village (Umar, 1995).</p>	 <p>Midas holy rock monument (Umar, 1995).</p>
	<p>A civilization at the peak of culture, wealth and splendidness (Akyıldız, 1997). Kybele, Artemisia and Dionysos were prominent Gods (Sevin, 1999).</p>		
<p><b>Lydia</b> (B.C. 680-546)</p>	<p>Millitary</p>	<p>Religous</p>	<p>Civil</p>
		 <p>Tantalos Tumulus (Sevin 1999).</p>	 <p>Goldsmith workshops (Sevin 1999).</p>
<p><b>Lykia</b> (B.C. 600-300)</p>	<p>They have a polytheist belief. Uniqie feature is caved in tombs in rocks. Although they are made of sotne they carry the features of timber architecture (Lloyd 2000).</p>		
<p><b>Greek</b></p>	<p>They served as a bridge between east and west. They are polytheists (<a href="Http://Serhatyeniceri.Sitemynet.Com/Ilkcag/Anadolu.Htm">Http://Serhatyeniceri.Sitemynet.Com/Ilkcag/Anadolu.Htm</a> Anadolu Tarihi. 23.03.2003). Artemisia temple in Ephesos is one of the seven wonders of the earth (Onurkan 1982).</p>		
	<p>Millitary</p>	<p>Religious</p>	<p>Civil</p>
		 <p>Artemisia, (Onurkan, 1982).</p>	 <p>Assos Athena Temple (Onurkan, 1982).</p>
<p><b>Persians</b> (B.C. 546-333)</p>	<p>Zoroastrianists. Only few of the monuments show the features of Persian culture. Satrap tomb, made by caving in the rocks (Umar, 1995).</p>		

Table 2. Contd.

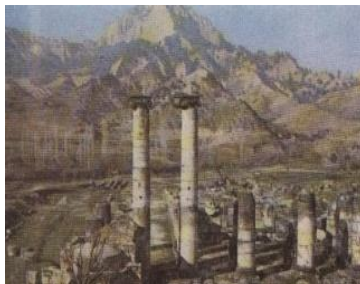
**Hellenistic (B.C. 330-30)** "Hellenistic" term includes the time between Alexander the Great and Roman conquests (Umar, 1995). It is an age of planned cities, libraries, museums, sculpture of big dimensions and splendid monumental architecture (Akyıldız, 1997).

Millitary

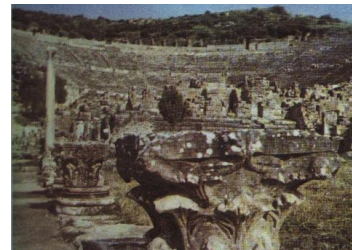
Religious

Civil

Nimrod



Sardes Artemisia Temple (Onurkan, 1982).

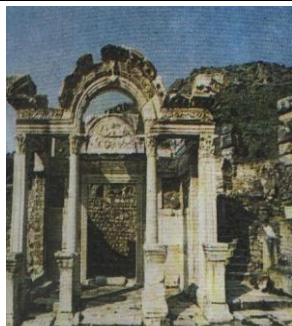


Ephes teathre (Onurkan, 1982).

**Roma (B.C. 30- A.D. 395)**

Roman Gods stayed same in names but as function became Greek (Umar, 1995).

Most splendid works of Roman art is in sculpture and architecture (Akyıldız, 1997).



Ephes Hadrian Temple (Onurkan, 1982).



Gümüşkesen monumental tomb (Onurkan, 1982).



Cendere Bridge, Adiyaman

**Byzantium (A.D. 395- 1453)**

Roman polytheism left its place to Christianity in Byzantium age. Despite it is a Christian art of middle age it contains the synthesis of past (Lloyd, 2000).

**Byzantine (A.D. 395- 1453)**

Millitary

Religious

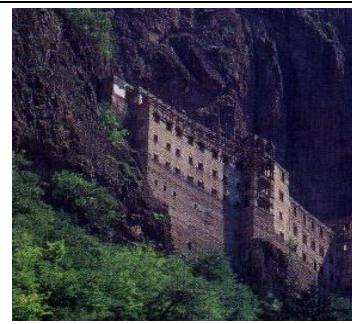
Civil



Trebizon Castle












Hagia Sofia, Trebizon (Anonim, 1984).



Virgin Mary monastery (Anonim, 1984).

**Table 2.** Contd.

	<p>Anatolian Seljukian architecture is generally religious. Mosque, madrasah, shrine, cupola are prominent structures (Akyıldız 1997).</p> <p>Caravanserais show the might and organization capacity of the Seljuks. Palace and mansions are modest structures besides sultan houses (Lloyd 2000).</p>		
	Military	Religious	Civil
<p><b>Seljukian</b> (A.D. 1071- 1300)</p>	 <p>Kars Castle</p>	 <p>Seljukian, Ahlat tombs</p>	 <p>Hasankeyf, bridge</p>
	 <p>Amasya Castle</p>	 <p>Ani remnants, mosque, Kars</p>	 <p>Sivas, hospital (Hallaçoğlu, 1982).</p>
	<p><b>Ottoman</b> (A.D.1299- 1923)</p> <p>Most splendid works are in the area of monumental architecture. Among most of the achitectural samples, might and wealth of the empire is represented (Lloyd, 2000).</p> <p>Ottoman both in architectural and engineering point of view built unique structures like shrine, madrasah, mansion, palace mosque, baths, water arches, bridges (Akurgal, 2000).</p>		
	Military	Religious	Civil
	 <p>Safranbolu houses</p>	 <p>Bursa, shirines (Hallaçoğlu, 1982).</p>	 <p>Doğubeyazıt, İshak Paşa Palace (Hallaçoğlu, 1982).</p>

Anatolia is a rare geography which has had many cultural riches, which has hosted many civilizations that can be traced back to thousands of years and which has been the world of diverse systems of belief, which makes up the richest mosaic in the world. For this reason, it would be easier to explore the mystery of space in Anatolia where creation of space has been considered very important. Taking Anatolia as the field of study is extremely important due to the fact that we are living in Anatolia and that it

has an extremely diverse textural richness (Figure 1).

Two cultures are frequently referred to in Anatolia: the culture before Turks came to Anatolia and the culture that Turks brought to Anatolia. The Anatolian culture is the product of a mixture of cultures of different civilizations before and after Turks came: before the Turks, the cultures in Anatolia were the pre-Hittite civilizations, Hittite civilization, Urartian civilization, Phrygian civilization, Lydian civilization, Lycian civilization, Persian sovereignty in Anatolia,

Hellenistic period, Roman period and Byzantine period; and with the arrival of Turks, the Seljuk civilization and Ottoman civilization, (Sinemoğlu, 1984; Şenel, 1996; Başdemir, 1999; Taşkıran, 1997). Before the Turks, there were countless beliefs in Anatolia. With the arrival of Turks, Anatolia became acquainted with the nomadic culture, their Shamanic beliefs and other great religions of Asia: Buddhism, Manichaeism, Christianity, Judaism and finally Islam, (Childe, 1995; Mc Neill, 1994; Mutlu, 2001).

## Methods

The method that this study employed is based on the investigation and analysis of the effects of the concept of beauty on architecture in a certain group of buildings. It has been argued that the concept of beauty affect the formation of buildings, which is the main premise of the present study. Based on this premise, the present study claims that the Islamic concept of beauty and its sub-concepts (which were obtained from a literature review) affect the architectural buildings or are reflected in the architectural buildings and that this can easily be noticed by the users. For example, it is a well-known fact that the different architectural examples of the Ottoman period were affected by the religion of Islam. However, the question of "which types of building were affected by which concepts of the religion and how" has been unanswered. With this question in mind, the study aimed to identify and sample different types of building in the stated Ottoman period and to question the effects of the Islamic concept of beauty and its sub-concepts on these examples (Table 3).

With the support of the principles of semiotics, the sample buildings were examined both semantically and syntactically, were described by using different concepts and necessary definitions and classifications were made. For this, the study employed different concepts for their semantic aspects and the basic design principles for their syntactic aspects (Table 4). These concepts were created by using the information, plans-vertical plans-façades and photographs of the buildings given in the section which explained the buildings under investigation. The concept of beauty in the study is based on the verses in Quran, on the explanations in the related literature and on the section of "Evaluation of the Emotional Reactions" in Michelson's book (Michelson, 1975), "Behavioural Research Methods in Environmental Design".

The building types that were chosen from the Ottoman period after a literature review were analyzed and classified by using the semiotic principles (semantic aspect, syntactic aspect), and in this way, the place of the concept of beauty in the buildings, the meanings that it takes in the buildings and the meanings that it gives to the buildings were explored and compared in terms of the semantic aspect to syntactic aspect relationship. At the sequential stages of the study, explanations and analysis tables regarding the following were created:

- a. Identifying the field of work: In terms of chronology, civilizations, types of building,
- b. Sample selection: Identification work based on published material, observation, interview,
- c. Identification work regarding the samples: Fieldwork, literature review,
- d. Analysis of the samples: Visual data about the buildings, information about the buildings, the concept of beauty in religion, identification of the sub-concepts.

In order to interpret architecture in terms of semiotics, it is necessary that the 'reflecting' and 'reflected' concepts must be applicable to the architecture. In terms of visual communication in architecture, the 'reflecting' are such characteristics as meaningful systems, spaces, areas, masses, rhythms, colours, textures; and the 'reflected' are such elements as iconographic meanings,

aesthetic meanings, architectural thoughts, space understandings, social beliefs and ways of living, functions, activities, commercial purposes, technical compliance, etc. In terms of semiotics, if there is no purpose of communication, architectural structures do not communicate anything in appearance. The architectural objects that do not communicate anything in appearance are functional. The architectural code that this functionality creates produces a visual code and the architectural image communicates the function of the architecture even when this function need not be realized. Charles Morris (Guirand, 1994; Erkmen, 1987; Ching, 2002; Yücel, 2001; Aksoy, 1975; Ertürk, 1993; Aydinli, 1993; Özek, 1983; Çolak, 1991; Venturi, 1991), divides semiotics into three as semantic, syntactic and pragmatic; The syntactic aspect (the syntactic relationship of the sign), the semantic aspect (the semantic function of the sign) and the pragmatic aspect (the pragmatic function of the sign). When the environment is seen as a source of information, the buildings or the whole of buildings can be interpreted as signs that communicate information. In terms of the theory of signs, a sign is divided into three: syntactic, semantic and pragmatic. Syntax is the structural/logical foundation of the sign; it is the core element. Semantics involves syntax and investigates the relationships between the sign and reality. Pragmatics involves semantics and syntax and investigates the effects of the symbol systems that the sign communicates on the users of those symbol systems (Uraz, 1993; Divanlioğlu, 1997). Within this framework:

1. In the semantic aspect, the concept of beauty was created from the;

- i. Sub-concepts of the concept of beauty in the religion derived mainly from the related literature and from the verses in the Quran,
- iii. Sub-concepts that were derived from the literature about the concepts in the buildings under investigation,
- iii. Emotional reaction concepts in the literature.

2. In the syntactic aspect, the concept of beauty was investigated under the basic design principles (Çakiroğlu, 2006; Gürer, 2004; Vitruvius, 1993, Kuban, 1989; Güngör, 1983; Tavşan, 2000; Rasmussen, 1994; Graves, 1951). The analyses that were based on the principles were made in the plans, vertical plans, façades, inner spaces and physical environments of the buildings. The formal principles that were studied are as follows:



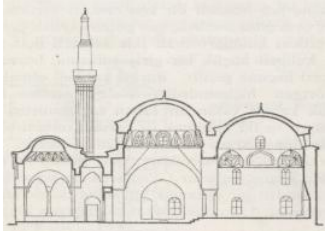



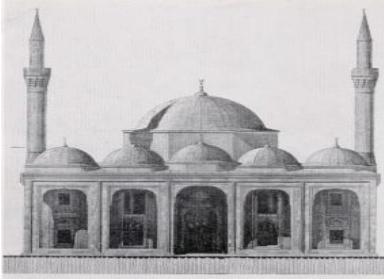





- i. Symmetry
- ii. Dominance
- iii. Rhythm (repetition)
- iv. Balance
- v. Contrast
- vi. Hierarchy
- vii. Harmony
- viii. Unity

3. The selection of the samples under investigation: Based on an exhaustive literature review, 40 sample buildings of religious architecture which remained intact up to the present day, which have not lost their characteristics, and about which we have enough information were chosen to be analysed. These buildings consisted of 22 mosques, 10 madrasahs, and 8 tombs (Table 3). Of the examples of both civil and religious architecture, the samples were chosen only from the religious architecture due to the fact that the topic was very broad in scope. The following methods were used in the selection of the samples:

- i. Identification work based on publications,
- ii. Observation,
- iii. Interview.



**Table 3.** The samples that were studied (mosque, madrasah, tomb).

<b>Sample mosques</b>		
<p>Hacı Özbek Mosque, İznik (<a href="http://www.iznik.gen.tr/t.eserler/haciozbek.htm">http://www.iznik.gen.tr/t.eserler/haciozbek.htm</a>). Single-domed (Single unit)</p> 	<p>Alauddin Mosque, Bursa (Aslanapa, 1977). Single-domed (single unit)</p> 	<p>Orhan Bey Mosque, Bursa (Kuran, 1964). Reverse T Plan (With a transverse axis)</p> 
<p>Eski Cami, Edirne (Aslanapa, 1993). Multi-domed (Multi-unit) (Same size)</p> 	<p>Yeşil Cami, İznik (Aslanapa, 1996). Single domed (Single unit) (Different inner space formation)</p> 	<p>Ulu Cami, Bursa (Aslanapa, 1977). Multi-domed (Multi unit) (same size)</p> 
<p>Yıldırım Cami, Bursa (Ünsal, 1959). Reverse T Plan (With a transverse axis)</p> 	<p>Yeşil Cami, Bursa (<a href="http://images.google.com.tr/kVmkoGUJ:&amp;tbnh=129&amp;tbnw=84&amp;hl=tr&amp;start=1&amp;prev=/images%3Fq%3Dbursa%2Bcami">http://images.google.com.tr/kVmkoGUJ:&amp;tbnh=129&amp;tbnw=84&amp;hl=tr&amp;start=1&amp;prev=/images%3Fq%3Dbursa%2Bcami</a>). Reverse T Plan (With a transverse axis)</p> 	<p>Üç Şerefeli Cami, Edirne (Ünsal, 1959). Multi-domed (Multi-unit) (With a central dome)</p> 
<p>Murad Paşa Mosque, İst. (Sözen, 1975). With large twin domes</p> 	<p>Atik Ali Paşa Mosque, İst. (Aslanapa, 1986). Multi-domed (Multi-Unit; with a central dome)</p> 	<p>Şehzade Mosque, İst. (<a href="http://www.oberlin.edu/art/mages/art109/art109.html">www.oberlin.edu/art/mages/art109/art109.html</a>). With four supports semidomed</p> 

**Table 3.** Contd.












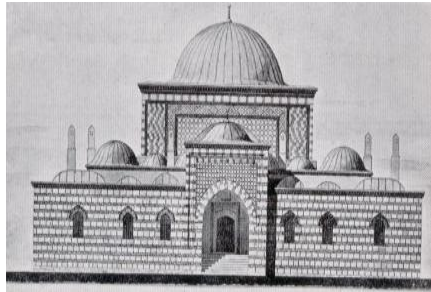





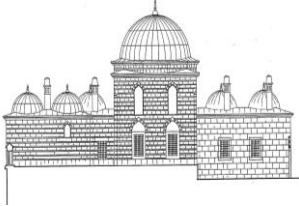


<p>Mihrimah Mosque, İst. (Kuban, 1998). With four supports-semidomed</p>	<p>Süleymaniye Mosque, İst. (Hattstein and Delius, 2000). With four supports- semidomed</p>	<p>Zal Mahmud Paşa Mosque .İst. (Aslanapa, 1986). With four supports- single-domed</p>
		
<p>Sinan Paşa Mosque, İst. (Kuban, 1998). With six supports</p>	<p>Rüstem Paşa Mosque, İst. (Günay, 2002). With eight supports</p>	<p>Mihrimah Sultan Mosque, İst. (Günay, 2002). With four supports-single-domed</p>
		
<p>Selimiye Mosque, Edirne (Günay, 2002). With eight supports</p>	<p>Valide Sultan Mosque., İst. (Günay, 2002). With six supports</p>	<p>Sokollu Mehmed P. Mosque İst. (Günay, 2002).With six supports</p>
		
<p>Sultan Ahmed Mosque, İst. (Günay, 2002). With four supports-semidomed</p>	<p>Zal Mahmud Paşa Mosque, İst. (Günay, 2002). A mosque with a courtyard jointly used with a madrasah</p>	
		

Table 3. Contd.

<b>Madrasah samples</b>		
<p>Muradiye, Bursa (Ünsal, 1959). Porticos and rooms on three sides of the courtyard and a classroom on one side</p> 	<p>Haseki Hürrem, İst. (Günay, 2002). Porticos on all four sides with rooms placed on three sides</p> 	<p>Mihrimah Sultan, İst. (Kuban, 1998). Porticos on all four sides with rooms placed on three sides</p> 
<p>Şehzade Medresesi, İst. (Aslanapa, 1986). Porticos on all four sides with rooms placed on three sides</p> 	<p>Süleymaniye Med., İst. (Aslanapa, 1986). Porticos on all four sides with rooms placed on three sides</p> 	<p>Rüstem Paşa Med., İst. (Aslanapa, 1986). A mosque with an octagonal courtyard with rooms on all sides</p> 
<p>Selimiye Madrasah, Edirne (Ülgen, 1994). Porticos on all four sides with rooms placed on three sides</p> 	<p>Valide Sultan Madrasah., İstanbul (Günay, 2002). Porticos on three sides with rooms</p> 	<p>Sokollu Mehmet Pasha., İstanbul (Günay, 2002). A madrasah with a courtyard jointly used with a mosque</p> 

## RESULTS






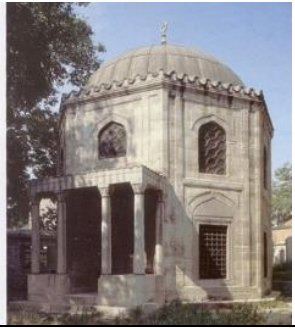


### Architecture and the concept of beauty under investigation

A beautiful building means that it meets a certain need on the one hand, and that it satisfies the human liking with its outer form, inner limits, empty spaces, colours, sizes and textures of its surfaces and its light and shadow on the other (Tavşan, 2000). Based on the accounts above, the study identified the sub-concepts of the concept of beauty and their opposites (Table 4).

### Building types and the sub-concepts according to building types

Different from the Turkish architectural schools in the previous periods, the Ottoman architects preferred architectural simplicity and beauty that emerged from the architecture itself. In order to cover the top of the building, they used the dome and gave a secondary place to other types of cover systems. The buildings in Ottoman architecture show a great variety, and they improved the understanding of architectural form, plan and therefore solved many problems in the traditional architecture. The building types that are commonly seen in Turkish

Table 3. Contd.

<b>Tomb samples</b>		
<p>Yeşil Türbe, Bursa (<a href="http://www.arches.uga.edu/~godlas/IsIArt.html">www.arches.uga.edu/~godlas/IsIArt.html</a>) .An octagonal tomb</p> 	<p>Murat II ,Bursa (<a href="http://www.arches.uga.edu/~godlas/IsIArt.html">www.arches.uga.edu/~godlas/IsIArt.html</a>) !. Kare planlı türbe A tomb with a square plan</p> 	<p>Mustafa ve Cem, Bursa (<a href="http://www.arches.uga.edu/~godlas/IsIArt.html">www.arches.uga.edu/~godlas/IsIArt.html</a>) ) A hexagonal tomb</p> 
<p>Barbaros, İstanbul (Ünsal, 1959). An octagonal tomb</p> 	<p>Şeh. Mehmet Türbesi (Ünsal, 1959). An octagonal tomb</p> 	<p>Şeh. Rüstem Paşa İst. (Ünsal, 1959). An octagonal tomb</p> 
<p>Kanuni Süleyman İst., (Ünsal, 1959). An octagonal tomb</p> 	<p>Selim II Türbesi, İst. (Ünsal, 1959). An octagonal tomb with chamfered corners</p> 	

religious architecture can be listed as follows:

1. Religious buildings: Mosques, madrasahs, dervish lodges, tombs, graves,
2. Civil buildings: Hospitals, soup kitchens, inns, caravanserais, bazaars, Turkish baths, marketplaces, public fountains, drinking fountains, bridges, aqueducts, cisterns, palaces, houses,
3. Military buildings: City walls, towers, castles (Ünsal, 1959).

A review of literature showed that there was a wide range therefore, the study investigated only the mosques,

madrasahs and tombs and identified the sub-concepts in the religious architecture (Table 5).

### **The concept of beauty-principles in the semantic and syntactic aspects**

The classification of semantic and syntactic aspects is given in Table 6. In this classification, one or more or all of these principles can be used together. The designer decides which principles should be used together. Buildings and designs are created with the help of these principles (Çolak, 1991).

**Table 4.** The sub-concepts of the concept of beauty in religion (Parlatir et al., 1994; Aykan, 2002; Yalçın 2002; Marans et al., 1987; Divanlioğlu, 1997).

Concept	Sub-concepts	Opposite concepts
Beauty	Appealing	Unappealing
	Pleasant, cheerful	Gloomy
	Love	Hatred
	Loyalty	Disloyalty
	Peace	Hostility
	Kindness	Unkindness
	Community, integrity, togetherness	Isolation

**Table 5.** The sub-concepts that define the mosques, madrasahs and tombs.

	Building types		
	Mosque	Madrasah	Tomb
Sub-concepts	Worship	Knowledge	Death
	Community	Education	Temporariness
	Gathering	Research	Mortality
	Togetherness	Development	History
	Knowledge	Cooperation	Respect
	Relief	Togetherness	Good feeling
	Peace	Wisdom (Kalın,1997)	Power (Kalın,1997)
	Confidence	Endurance	Grandeur (Kalın,1997)
	Power	(Kalın,1997)	Endurance
	Cleanliness (Fountain)	Success	(Kalın,1997)
	Cooperation (Public fountain)	(Kalın,1997)	
	Sharing		
	Friendship		
	Affection		
	Respect		
	Tolerance		
	Guidance		
	Power (Kalın,1997)		
	Grandeur (Kalın,1997)		
	Endurance (Kalın,1997)		

### The building types that the study investigated in terms of semantic and syntactic aspects and the analyses of the buildings

In this study, a total of 40 sample buildings including mosques, madrasahs and tombs were classified chronologically according to building types. Additionally, the sample buildings were also classified according to their general characteristics.

### FINDINGS AND DISCUSSION

In this section, the concept of beauty in the sample buildings was analyzed in terms of semantic and syntactic aspects. In terms of building types, the semantic and syntactic analyses of the sub-concepts of the concept of beauty in the sample buildings are as follows:

a. The concepts and building types that the concept of beauty evokes in mind; “appealing” (mosque), “community, integration, togetherness” (mosque, madrasah), “restful” (mosque, madrasah, tomb), “light” (mosque, madrasah, tomb), “beauty, kindness, affection, respect, happiness” (mosque, madrasah, tomb), “hospitable” (mosque, madrasah), “dynamic” (mosque), “refined” (mosque, madrasah), “simple” (mosque, madrasah, tomb).

b. The most common concepts: In mosques; “appealing”, “community, integration, togetherness”, “restful”, “light”, “beauty, kindness, affection, respect, happiness”, “hospitable”, “dynamic”, “refined”, “simple”; In madrasahs; “community, integration, togetherness”, “restful”, “light”, “beauty, kindness, affection, respect, happiness”, “hospitable”, “refined”, “simple”; In tombs; “restful”, “light”, “beauty, kindness, affection, respect, happiness”,

**Table 6.** The concepts-principles at the semantic and syntactic aspects.

		The semantic dimension						
		The sub-concepts that were investigated by being based on the basic concepts in the religion and emotional reactions						
<b>Formation principles</b>	Community	Efficient	Free space					
	Isolation	Inefficient	Restricted space					
	Continuity	Empty	Dynamic					
	Discontinuity	Full	Flat					
	Knowledge	Appealing	Stable					
	Ignorance	Unappealing	Rickety					
	Power	Balance	Mystic					
	Powerlessness	Imbalance	Non-mystic					
	Beautiful	Honesty	Rhythmic					
	Ugly	Dishonesty	Unrhythmic					
	Relaxing	Secure	Inviting					
	Upsetting	Insecure	Repelling					
	Simple	Modesty	Heavy					
	Complex	Arrogance	Light					
	Light	Plain	Consonant					
	Dark	Ornate	Dissonant					
	Hospitable	Reverent	High					
	Inhospitable	Irreverent	Low					
	Convergence	Partitioning	Inner directed					
	Divergence	Openness	Outer directed					
Cooperation	Confused	Success						
Unkindness	Clear	Failure						
<b>The basic design principles</b>	<b>The syntactic dimension</b>							
	Symmetry	Sovereignty	Rhythm (Repetition)	Balance	Contrast	Hierarchy	Harmony	Unity

“simple” (Table 7).

c. The basic design principles in the syntactic aspect of the concept of beauty in the samples: “Symmetry” (mosques, madrasahs, tombs), “Dominance” (mosques, madrasahs, tombs), “Rhythm” (mosques, madrasahs, tombs), “Balance” (mosques, madrasahs, tombs), “Contrast” (mosques, madrasahs, tombs), “Hierarchy” (mosques), “Harmony” (mosques, madrasahs, tombs), “Unity” (mosques, madrasahs, tombs).

d. The most common concepts: In mosques; “Symmetry”, “Dominance”, “Rhythm”, “Balance”, “Contrast”, “Hierarchy”, “Harmony”, “Unity”, In madrasahs; “Symmetry”, “Dominance”, “Rhythm”, “Balance”, “Contrast”, “Harmony”, “Unity”; In tombs; “Symmetry”, “Dominance”, “Rhythm”, “Balance”, “Contrast”, “Harmony”, “Unity” (Table 8).

The sub-concepts of the concept of beauty and the identified characteristics can be listed as follows:

a. The concept of “Appealing”: This concept is found only in the mosques; they are seen as decorations that symbolize the nature without the use of figures and as a search for a stepped form in the mass. In the basic design principles, this concept is expressed with the concepts of symmetry, rhythm, hierarchy, harmony and unity.

b. The concept of community/integration/togetherness: While in mosques, this concept is seen as praying collectively, communicating with other people, gathering together under the dome, and greeting people or saying goodbye to people in the portico or courtyard and in madrasahs as making it possible to communicate with

**Table 7.** The semantic dimension table of the concept of beauty.

Concept	Building types		
	Mosque	Madrasah	Tomb
Appealing			
Community, integrity, togetherness			
Peace, restful, relaxing			
Light, open			
Beauty, kindness, affection, respect, happiness			
Hospitable			
Dynamic			
Elegant, refined			
Simple			

**Table 8.** The syntactic dimension table of the concept of beauty.

Basic design principles	Building types		
	Mosque	Madrasah	Tomb
Symmetry			
Dominance			
Rhythm			
Balance			
Contrast			
Hierarchy			
Harmony			
Unity			

other people, it is not seen in tombs due to the fact that tombs are buildings which are essentially visiting places. In the basic design principles, this concept is expressed with the concepts of symmetry, balance, hierarchy, harmony and unity in the mosques; and with the concepts of symmetry, balance, harmony and unity in the madrasahs.

c. The concept of “Restful”: In mosques, the concept of “restful” is felt with the perceptibility of the space; in madrasahs, with the courtyard in the inner space though madrasahs are closed to the outer world and have a serious appearance; and in tombs, with the clarity in the plan and mass. In the basic design principles, the concept of “restful” is expressed with the concepts of symmetry, rhythm, balance, hierarchy, harmony, and unity in the mosques; and with the concepts of symmetry, rhythm, balance, harmony, and unity in the madrasahs and tombs.

d. The concept of “light”: This concept was not present in the early period mosques with single domes and adverse T plans because of their inherent introversion; however, with the increase in the heights of the buildings and with the addition of abundant windows and the resulting extroversion towards the classical period, the concept of “light” became part of the mosques. In the madrasahs,

although they were introverted, the concept of “light” was provided with the courtyard in the inner space. Like the mosques, the madrasahs were also closed to the outer world (introverted) in the early period; however, towards the classical period, they became extroverted and “light” spaces with the addition of an abundant number of windows. In the basic design principles, the concept of “light” is expressed with the concepts of harmony and unity.

e. The concept of “Beauty, kindness, affection, respect, happiness”: This concept is present in all sample spaces and is present in spaces where there is cooperation, love, affection, respect and tolerance. In the basic design principles, this concept is expressed in the mosques with the concepts of symmetry, dominance, rhythm, balance, hierarchy, harmony and unity; and in the madrasahs and tombs with the concepts of symmetry, dominance, rhythm, balance, harmony and unity.

f. The concept of “Hospitable”: A hospitable entrance was created in the mosques with the portico and movements in the façades and with the courtyard and ablutions fountain that were added to the mosques towards the classical period. Although, the madrasahs were serious and introverted, their entrances were given utmost care/importance, and a warm and hospitable environment

**Table 9.** The semantic and syntactic definitions of the sub-concepts of beauty.

	Mosques	Madrasahs	Tombs
The concept of beauty: The Sub-concepts– Basic Design Principles	Appealing ( <i>Symmetry, Rhythm, Hierarchy, Harmony, Unity</i> )		
	Community, integrity, togetherness ( <i>Symmetry, Balance, Hierarchy, Harmony, Unity</i> )	Community, integrity, togetherness ( <i>Symmetry, Rhythm, Harmony, Unity</i> )	-
	Relaxing ( <i>Symmetry, Rhythm, Balance, Hierarchy, Harmony, Unity</i> )	Relaxing ( <i>Symmetry, Rhythm, Balance, Harmony, Unity</i> )	Relaxing ( <i>Symmetry, Rhythm, Balance, Harmony, Unity</i> )
	Light, open ( <i>Harmony, Unity</i> )	Light, open ( <i>Harmony, Unity</i> )	Light, open ( <i>Harmony, Unity</i> )
	Beauty, kindness, affection, respect, happiness ( <i>Symmetry, Dominance, Rhythm, Balance, Hierarchy, Harmony, Unity</i> )	Beauty, kindness, affection, respect, happiness ( <i>Symmetry, Dominance, Rhythm, Balance, Harmony, Unity</i> )	Beauty, kindness, affection, respect, happiness ( <i>Symmetry, Dominance, Rhythm, Balance, Harmony, Unity</i> )
	Hospitable ( <i>Symmetry, Rhythm, Balance, Hierarchy, harmony, Unity</i> )	Hospitable ( <i>Symmetry, Rhythm, Balance, Harmony, Unity</i> )	-
	Dynamic ( <i>Dominance, Contrast, Hierarchy</i> )	-	-
	Elegant, refined ( <i>Balance, Harmony, Unity</i> )	Elegant, refined ( <i>Balance, Harmony, Unity</i> )	-
	Simple ( <i>Symmetry, Dominance, Rhythm, Balance, Harmony, Unity</i> )	Simple ( <i>Symmetry, Dominance, Rhythm, Balance, Harmony, Unity</i> )	Simple ( <i>Symmetry, Dominance, Rhythm, Balance, Harmony, Unity</i> )

was created with their inviting air and unexaggerated sizes. Tombs are not hospitable due to the fact that they are burial places. In the basic design principles, the concept of “hospitable” is expressed with the concepts of symmetry, rhythm, balance, hierarchy, harmony, and unity in the mosques; and with the concepts of rhythm, balance, harmony, and unity in the madrasahs.

g. The concept of “Dynamic”: The dynamic expression is seen extremely effectively especially in the examples of mosques built in the classical period. The madrasahs and tombs have a serious and quiet formal understanding. In the basic design principles, the concept of “dynamic” is expressed with the concepts of dominance, contrast and hierarchy.

h. The concept of “Refined”: In the mosques, this concept is expressed with the columns in the portico, with the domes of various sizes in the portico and in the main prayer area, with the stepped expression of the height, and with the decorations on the building. In the basic design principles, the concept of “refined” is expressed with the concepts of balance, harmony and unity.

i. The concept of “Simple”: In mosques; this concept was expressed with the simplicity in the plans and masses in

the single-domed mosques of the early period; with the simplicity in the space despite the movements and stepping in the mass which were used in the early period in the mosques with adverse T plan and which reached its peak with the classical period; in madrasahs, with the use of spaces around the courtyard and with the simplicity in the plans and masses; in tombs with the easy perception as a result of the harmony between the plans and masses. In the basic design principles, this concept is expressed with the concepts of symmetry, dominance, rhythm, balance, harmony and unity.

The semantic and syntactic definitions of the sub-concepts of the concept of beauty in the mosques, madrasahs and tombs and the number of samples are given in Table 9.

**Conclusions**

The properties identified in the sub-concepts of the concept of beauty can be listed as follows:

a. The concept of “Appealing”: It is found in mosques. In



**Table 10.** The semantic and syntactic definitions of the concept of beauty in the sample mosques.

Concept	Semantic dimension	Syntactic dimension
	The sub-concepts–basic design principles with which it is related	Basic design principles
Beauty	Appealing ( <i>Symmetry, Rhythm, Hierarchy, Harmony, Unity</i> )	
	Community, integrity, togetherness ( <i>Symmetry, Balance, Hierarchy, Harmony, Unity</i> )	
	Relaxing ( <i>Symmetry, Rhythm, Balance, Hierarchy, Harmony, Unity</i> ) Light, open ( <i>Harmony, Unity</i> )	Symmetry Dominance Rhythm Balance
	Beauty, kindness, affection, respect, happiness ( <i>Symmetry, Dominance, Rhythm, Balance, Hierarchy, Harmony, Unity</i> )	Contrast Hierarchy Harmony Unity
	Hospitable ( <i>Symmetry, Rhythm, Balance, Hierarchy, Harmony, Unity</i> )	
	Dynamic ( <i>Dominance, Contrast, Hierarchy</i> )	
	Elegant, refined ( <i>Balance, Harmony, Unity</i> )	
	Simple ( <i>Symmetry, Dominance, Rhythm, Balance, Harmony, Unity</i> )	

the basic design principles, it is expressed with symmetry, rhythm, hierarchy, harmony and unity.

b. The concept of “Community/Integration/Togetherness”: It is found in mosques and madrasahs. In the basic design principles, it is expressed with the concepts of symmetry, balance, hierarchy, harmony and unity in mosques; and with symmetry, balance, harmony and unity in madrasahs.

c. The concept of “restful”: It is found in mosques, madrasahs and tombs. In the basic design principles, it is expressed with the concepts of symmetry, rhythm, balance, hierarchy, harmony and unity in the mosques and with symmetry, rhythm, balance, harmony and unity in the madrasahs and tombs.

d. The concept of “light”: It is found in mosques, madrasahs and tombs. In the basic design principles, it is expressed with the concepts of harmony and unity.

e. The concept of “Beauty/ Kindness/ Affection/ Respect/ Happiness”: It is found in mosques, madrasahs and tombs. In the basic design principles, it is expressed with the concepts of symmetry, dominance, rhythm, balance, hierarchy, harmony and unity in the mosques; and with symmetry, dominance, rhythm, balance, harmony and unity in the madrasahs and tombs.

f. The concept of “Hospitable”: It is found in mosques and madrasahs. In the basic design principles, it is expressed with the concepts of symmetry, rhythm, balance, hierarchy, harmony and unity in the mosques; and with symmetry, rhythm, balance, harmony and unity in the madrasahs.

g. The concept of “Dynamic”: It is found in mosques. In the basic design principles, it is expressed with the concepts of dominance, contrast and hierarchy.

h. The concept of “Refined”: It is found in mosques and madrasahs. In the basic design principles, it is expressed

with the concepts of balance, harmony and unity.

i. The concept of “Simple”: It is found in mosques, madrasahs and tombs. In the basic design principles, it is expressed with symmetry, dominance, rhythm, balance, harmony and unity.

j. The concept of “Beauty”: In terms of the semantic aspect, the concept of beauty was summarized by using the sub-concepts that were obtained through the analyses of the basic concepts in Islam and the emotional reactions; in terms of the syntactic aspect, its meanings which were explained with the basic design principles with which the sub-concepts are related were given (Table 10, Table 11 and Table 12).

## RECOMMENDATIONS

In conclusion, it can be said that religion is a very important factor in architectural formation; that the analyses of the meanings that are attributed to the architectural structures in terms of their functions, forms, and proportions-scales will contribute to the definition of this factor; and that this will be very useful in exploring the new parameters that will be a guideline for the new designs.

Based on the fact that the aim of this study is to give concrete explanations of some abstract concepts to the designers and researchers, it can be said that this study will also contribute to the architectural education. This study, which has a large scope but which was limited to the examples of religious architecture in the Ottoman Empire, can be extended by including the:

- i. Building types in civil and military architecture,
- ii. Seljuk, Hittite, Lydian, Lycian, etc. civilizations,

iii. Similarities and differences in terms of the concepts in different civilizations and similarities and differences in terms of the concepts in different religions.

## REFERENCES

- Akarca A (1972). Yunan arkeolojisinin ana çizgileri I şehir ve savunması. Türk Tarih Kurumu Yayinlari, Ankara.
- Aksoy E (1975). Mimarlikta tasarim iletim ve denetim. KTÜ Yayinlari, İstanbul.
- Aksoy Ö (1977). Biçimlendirme. Birinci Baski, Karadeniz Gazetecilik ve Matbaacilik A.Ş, Trabzon.
- Akurgal E (2000). Anadolu uygarliklari. Yedinci Baski. Net Turistik Yayinlari, İstanbul.
- Akyildiz E (1997). Taş çağı'ndan Osmanlı'ya Anadolu. Dördüncü Baski, AD Yayıncılık, İstanbul.
- Anonim (1970). Din, meydan-larousse büyük lugalat ve ansiklopedisi. Üçüncü Cilt, Meydan Yayınevi, İstanbul. 705-709.
- Anonim (1979). Din, yeni resimli bilgi ansiklopedisi. Başkan Yayinlari, İstanbul, 17-72.
- Anonim (1983). Din, görsel dünya ansiklopedisi. Cilt:3, Görsel Yayinlar, İstanbul. 784-789.
- Anonim (1983). Sanat tarihi ansiklopedisi görsel güzel sanatlar ansiklopedisi. 2.Cilt, 2.Baski, Görsel Yayinlar.
- Anonim (1984). Black Sea Region. Turkey 1, Ankara.
- Anonim (1994). Dinler, Thema Larousse (Tematik Ansiklopedi) İnsan ve Tarih. Tarih Siyasal Bilimler, Düşünce Tarihi, 1.cilt, Milliyet. 474-537.
- Aslanapa O (1977). Yüzyillar boyunca Türk sanatı (14.yüzyil). Devlet Kitapları.
- Aslanapa O (1986). Osmanli devri mimarisi. İnkilap Kitabevi, İstanbul.
- Aslanapa O (1993). Türk sanatı. Üçüncü Basım, Remzi Kitabevi, İstanbul.
- Aslanapa O (1996). Türk Cumhuriyetleri mimarlık abideleri. Türksöy Yayinlari, 7, Ankara.
- Ataç M (1981). İslam mimarlığı kavrami bir geleneksel kültür kavramidir. Mimarlik. 11(5): 51-59.
- Aydinli S (1993). Mimarlikta estetik değerler. 1.Baski, İTÜ Mimarlik Fakültesi Baski Atölyesi, İstanbul.
- Aykan R (2002). Kelime ve konularına göre alfabetik Kur'an Fihrist. Üçüncü Basım, Pinar Yayinlari, İstanbul.
- Bammatt N (1987). İslam'da mekan anlayışı. Kiliç S. İlim ve Sanat, 3-4 (1987) 41-50.
- Başdemir K (1999). Eski Anadolu tarihsel ve kültürel süreklilik. 1.Basım, Kaynak Yayinlari, İstanbul.
- Çakiroğlu B (2006). İslam dinindeki temel kavramların Osmanli Dönemi (13 YY.-17 YY.) dini mimarisine yansımalar. Doktora Tezi, KTÜ Fen Bilimleri Enstitüsü, Trabzon.
- Cansever T (1994). Ev ve şehir. İnsan yayinlari, İstanbul.
- Cansever T (1997). İslamda şehir ve mimari. İz yayincilik, İstanbul.
- Cansever T (1997). Kubbeyi yere koymamak konuşmalar. İz Yayıncılık, İstanbul.
- Ceram CW (1994). Tanrıların vatani Anadolu. Erendor, E.N. 4.Baski, Remzi Kitabevi, İstanbul.
- Challaye F(1998). Dinler tarihi. Tiryakioğlu, S. Dördüncü baski, Varlık yayinlari, İstanbul.
- Childe G (1995). Tarihte neler oldu. 6.Baski, Alan Yayıncılık, İstanbul.
- Ching FDK (2002). Mimarlık, Biçim, Mekan ve Düzen. Lökçe, S., Yem Yayinlari, İstanbul.
- Çolak A (1991). Duvarlar, anlamsal (semantik) ve dizimsel (sentatik) bir analiz. Doktora Tezi, KTÜ Fen Bilimleri Enstitüsü, Haziran.
- Combrich E H (1987). Sanatın öyküsü. Cömert, B.,
- Çoruhlu Y (1993). Türk islam sanatının ABC'si. Simavi Yayinlari, İstanbul.
- Çoruhlu Y (2000). Türk islam sanatının ABC'si. Kabalcı Yayınevi, İstanbul.
- Dickie J (1996). Allah and Eternity: mosques, madrasas and tombs, architecture of the Islamic world 2. Baski, Thames and Hudson, London. pp. 15-47.
- Diñçol A M (1982). Hititler, Anadolu uygarliklari görsel Anadolu tarihi ansiklopedisi. Cilt 1, Görsel Yayinlar, 18-119.
- Divanlıoğlu DH (1997). Temel tasar, tasarim öge ve ilkeleri. Birsen Yayınevi, İstanbul.
- Divanlıoğlu DH (1997). Temel tasar. Tasarim öge ve ilkeleri. Birsen Yayınevi, İstanbul. Dördüncü Basım, Remzi Kitabevi, İstanbul.
- Enön Z (1987). Yerleşmeler tarihi ders notları, KTÜ yayinlari, Trabzon.
- Erkman F (1987). Göstergibilime giriş. 1.Baski, Alan yayincilik.
- Ertürk S (1993). Mimari mekanın algılanması üzerine deneysel bir çalışma. Karadeniz Üniversitesi Basımevi. Trabzon.
- Graves M (1951). The art of colour and design. McGraw-Hill Book Company, Inc., New York.
- Guirand P (1994). Göstergibilim. Yalçın, M., Baski İmge Kitabevi, Ankara.
- Günay R (2002). Mimar Sinan ve eserleri. Birinci Baski, Yem Yayin, İstanbul.
- Güngör İH (1983). Temel tasar. 2.Baski, Afa Matbaacılık, İstanbul.
- Gürer L, Gürer G (2004). Temel tasarim. Birsen yayinevi, İstanbul.
- Halaçoğlu Y (1982). Osmanli Tarihi, Anadolu Uygarliklari Ansiklopedisi, Cilt 4, Görsel Yayinlar, 642-731.
- Hattstein M, Delius P (2000). İslam art and architecture. Könemann, France.
- Haydar G (1991). Şehirlerin ruhu. Sekmen G., İnsan Yayinlari, İstanbul.
- <http://images.google.com.tr/k/mkoGUJ:&tbh=129&tbw=84&hl=tr&start=1&prev=/images%3Fq%3Dbursa%2Bcami+ Bursa. 04-08-2005.>
- <http://johnpaulheil.com/turkey.htm> A Study Tour of Biblical Sites in Turkey. 20.03.2003.
- <http://Serhatyeniceri.Sitemynet.Com/Ilkcgag/Anadolu.Htm> Anadolu Tarihi. 23.03.2003.
- <http://Serhatyeniceri.Sitemynet.Com/Ilkcgag/Anadolu.Htm> Anadolu Tarihi. 23.03.2003.
- <http://www.iznik.gen.tr/t.eserler/haciobek.htm> Hacıözbek Cami. 13-04-2005.
- [http://www.kultur.gov.tr/portal/arkeoloji\\_tr.asp?belgeno=2953](http://www.kultur.gov.tr/portal/arkeoloji_tr.asp?belgeno=2953) Arkeoloji. 14.02.2003.
- <http://www.savestonehenge.org.uk/actnow.html> Save Stonehenge. 19.03.2003.
- <http://www.searchindia.com/search/Society/Religion/Islam/index.shtml> İslam. 18.03.2003.
- <http://www.sscnet.ucla.edu/southasia/Culture/Archit/TajM.html> Taj Mahal. 23.03.2003.
- [http://www.zionet.co.il/hp/asya\\_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Nijnijy.11.11.2005.](http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Nijnijy.11.11.2005.)
- [http://www.zionet.co.il/hp/asya\\_entova/photo/sinagog/sinagog.php3?id=Sinagog-Moskva2 Moskva. 11.11.2005.](http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagog-Moskva2 Moskva. 11.11.2005.)
- [http://www.zionet.co.il/hp/asya\\_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Penza Penza. 11 Kasim 2005.](http://www.zionet.co.il/hp/asya_entova/photo/sinagog/sinagog.php3?id=Sinagoga-Penza Penza. 11 Kasim 2005.)
- Kalin A (1997). Bitkilerin anlamsal boyutu: Farkli fonksiyonlardaki bina ve mekanlarla anilabilen bitkiler üzerine bir araştırma. KTÜ Fen Bilimleri Enstitüsü, Yüksek Lisans Tezi, Trabzon.
- Kuban D (1989). Mimarlık kavramları. 1.Baski, yem yayinlari, İstanbul.
- Kuban D (1998). Kent ve Mimarlık Üzerine İstanbul Yazıları, birinci basım, yem yayin, İstanbul.
- Kuran A (1964). İlk devir Osmanli mimarisinde cami. O.D.T.Ü. Mimarlık fakültesi yayini 1, Ankara.
- Lloyd S (2000). Türkiye'nin tarihi bir gezinim gözüyle anadolu uygarliklari. 12.Basım,Tübitak Yayinlari, Ankara.
- Marans Robert W, Ahrentzen S (1987). Developments in research design, data collection and analysis-quantitative methods, advances in environment. Behaviour and Design Plenum Pres, London, 1: 251-277.
- Mc Neill WH (1994). Dünya tarihi. Şenel, A., 3.Baski, İmge Kitabevi, Ankara.
- Michelson W (1975). Behavioural research methods in environment design. Halsted Pres, Pennsylvania. Moonstar Türkçe Dil Kilavuzu
- Mutlu B (2001). Mimarlık tarihi ders notları 1. 2.Baski, Mimarlık Vakfi EnstitüsüYayinlari, İstanbul.
- Onurkan S (1982). Anadolu'da eski Yunan ve Roma arkeolojisi. Anadolu uygarliklari görsel anadolu tarihi ansiklopedisi. Cilt 2, Görsel Yayinlar, 364-416.
- Örnek SV (2000). 100 soruda ilkelere din, büyü, sanat, efsane. Dördüncü Baski, Gerçek Yayınevi, İstanbul.
- Özek V (1983). Mimarlikta gösterge ve eşik aşamasının belirlenmesi. Doktora Tezi, KTÜ İnşaat ve Mimarlık Fakültesi Yayini, Trabzon.

- Özer B (1993). Yorumlar. İkinci Baskı, Yem Yayınevi, İstanbul.
- Parlatır İ, Zülfikar H, Gözaydın N (1994). Okul sözlüğü. Türk Dil Kurumu Yayınları, Ankara.
- Raci El-Faruki İ, Lamia El-Faruki L(1999). İslam kültür atlası. Kibaroğlu, M.O.,Kibaroğlu, Z., 3.Baskı, İnkilap yayınları, İstanbul.
- Rasmussen SE (1994). Yaşanan mimari. 1.Basım, Remzi Kitabevi.
- Roth LM (2000). Mimarlığın öyküsü. Birinci Basım, Kabalcı Basımevi, İstanbul.
- Schulz CN (1983). Meaning in Western Architecture. Rizzoli, Italy.
- Seckel D (1964). The art of buddhism. Keep A. E., Holle Verlag G.M.B.H., Baden-Baden, Germany.
- Şenel A (1996). Siyasi düşünceler tarihi. 5. Baskı, Bilim Ve Sanat Yayınları, Ankara.
- Sevin V (1982). Anadolu'da Yunanlılar. Anadolu uygarlıkları görsel Anadolu tarihi ansiklopedisi, cilt 2, Görsel yayınlar. 214-225.
- Sevin V (1999). Anadolu arkeolojisi. İkinci Baskı, Der Yayınları, İstanbul.
- Sinemoğlu N (1984). Sanat tarihi, tarih öncesinden Bizansa. Milli Eğitim Basınevi, İstanbul.
- Sözen M, Arık R, Asova K, Bilge A, Çelik Z, Nayir Z, Pehlivanoğlu M, Sağnak Z, Tapan M, Yönder A (1975). Türk mimarisinin gelişimi ve Mimar Sinan, Türkiye İş Bankası Kültür Yayınları, İstanbul.
- Stierlin H (1997). Encyclopedia of World Architecture, Evergreen, Spain.
- Tanilli S (1994). Uygarlık tarihi, Sekizinci Baskı, Cem Yayınevi.
- Taşkıran İH (1997). Yazı ve mimari. Yapı Kredi Yayınları. 1.Baskı, İstanbul.
- Tavşan C (2000). Mimari form analizi için bir yöntem araştırması: çağdaş mimarlık akımlarına bağlı son dönem müze yapılarında uygulanması. Doktora Tezi, KTÜ Fen Bilimleri Enstitüsü, Trabzon.
- Tümer G, Küçük A (1977). Dinler tarihi, Üçüncü Baskı, Ocak yayınları, Ankara.
- Turani A (1992). Dünya sanat tarihi. Dördüncü baskı, Remzi kitabevi, İstanbul.
- Türkoğlu İ (2003). Yahudi geleneğinde Sinagog. Toplumsal Tarih. 112(4): 10-17.
- Ülgen AS (1994). Çizimler.
- Umar B (1995). Türkiye'deki tarihsel anıtlar. İnkilap Kitabevi.
- Umar B (1995). Türkiye'deki tarihsel anıtlar, İnkilap Kitabevi.
- Ünsal B (1959). Turkish islamic architecture in Seljuk and Otoman times 1071-1923. Alec Tirandi, London.
- Ünsal B (1996). Mimari tarihi. 3.Baskı, İ.Y.T.O. Yayınları, İstanbul.
- Uraz U (1993). Tasarlama, düşünme, biçimlendirme. İTÜ Mimarlık Fakültesi, Baskı Atölyesi, İstanbul.
- Venturi A (1991). Mimarlıkta karmaşıklık ve çelişki. 1.Baskı, Şevki Vanlı Mimarlık Vakfı, İstanbul.
- Vitruvius (1993). Mimarlık üzerine on kitap. Güven S. Şevki Vanlı mimarlık Vakfı, İkinci Baskı, Aralık.
- [www.arkitera.com/webrehberi/mimarlikvesanattarihi](http://www.arkitera.com/webrehberi/mimarlikvesanattarihi) Mimarlık ve Sanat Tarihi. 18.03.2003.
- [www.geocities.com/izkir/arkeoloji.htm](http://www.geocities.com/izkir/arkeoloji.htm) Arkeoloji. 18.03.2003.
- [www.kamat.com/kalranga/architecture](http://www.kamat.com/kalranga/architecture) Indian Architecture. 17.03.2003.
- Yalçın C (2002). Eş anlamlı karşıt anlamlı eş sesli sözcükler sözlüğü. 2.Baskı, Tutibak Yayınları, Ankara.
- Yücel T (2001). Genel göstergebilim tartışmalar. Multilingual Yayın, İstanbul, 9-14.