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Integration Theory in Measuring Cultural Diversity in the Western Urban Context: The Case of Islamic Religious Buildings in the Western Urban Context

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ABSTRACT

This research deals with integration theory in measuring cultural diversity in the urban context. Cultural diversity is the recognition of the rights of all groups in society, so the presence of Muslims in Western society is an example of reflecting cultural diversity in the Western urban context. Integration theory is an attempt to bring a variety of theories and models into one framework. It consists of four quadrants, each quadrant representing a specific scale. Muslims represent the social part interacting with Western society, which is the subjective, individual and collective part of the integration theory (the first and third quadrants), and the Islamic religious buildings and their interaction with the urban context represent the objective part of the integration theory (the second and fourth quadrants). A specific questionnaire is chosen for each quarter and the results of the questionnaire provide a measure of the subjective and objective aspects of integration theory. The results showed that the subjective aspects of individuals and their relationship with Western society are the highest percentage of the objective aspects of the requirements of the Islamic religious building or the relationship of the religious building with the Western urban context. Multicultural planning has a role in integrating culturally diverse societies and achieving smooth interaction among its members.

1. INTRODUCTION

The problem of measuring subjective and objective aspects at the same time is one of the many problems facing the field of architecture. Since most of the topics in particular that are related to the social aspects of architecture have a subjective nature, they require special standards. As for the aspects of architecture that have an objective character, they require other standards. Therefore, integration theory is one of the metatheories, and it is a strong critical approach with high flexibility in applications that combine theory and practice. It is an attempt to put a variety of theories and models into one framework. AQAL (all-quadrant, all-level) theory framework in order to understand the circumstance, relationship, event or any experience from four points of view (four quadrants) that arise simultaneously, subjective and objective, individual and collective. Thus, experiences can only be fully understood through comprehensive analyzes that respect the partial truths of each perspective. Popularized by Ken Wilber in the early 1970s in developmental psychology. Developed by architect Mark DeKay in 2011, integration theory is applied to the enormous challenges associated with the field of design, architecture, and sustainability [1].

DeKay's concept of Integrated Sustainable Design (ISD) is based on looking at integrators holistically, offering four simultaneous perspectives (represented by quadrants) each with a different perspective on the problem. The upper left quadrant refers to people's individual "experiences". The upper right quadrant represents the “behaviors” of buildings within the environment. The lower left quadrant represents the "cultures" of the groups and represents meaning, symbolism, and worldviews. While the lower right quadrant “systems” explores responding and interacting with context [1].

Internal perspective: It represents the individual (I) and the group (WE), the individual in terms of his subjective experience, intention and psychological nature. The group is within a specific cultural space.

External perspective: These are the external parts that can be observed (IT), and are in an individual situation or linked to relationships in a group situation. The external parts are known as environmental and social systems (ITS), and are characterized by dynamic goals [1].

Some recent studies have examined the subject, including the study “Measuring the urban integral sustainability in “Mustansiriya University according to the integral design theory,” which applies the theory of sustainable integration, with its subjective and objective aspects, to the Mustansiriya University building in Baghdad [2]. The study of “MetaPhysics of Architecture: An integral theory framework for sustainability”, which sees the practice of sustainable design by considering the culture of meaning instead of the culture of presence and developing an approach that links the subjective and objective aspects of thinking [3]. And other studies that left the field open about the impact of both subjective and objective aspects and approached it from multiple points of view. Therefore, the use of integration

theory, both subjective and objective, can be exploited to measure cultural diversity in the Western urban context. A new group will be identified that has become part of European and American societies, namely Muslims after their migration to those countries. Thus, the subjective aspects represent Muslims and their interaction with Western society, and the objective aspects represent Islamic religious buildings in the Western urban context (Figure 1).

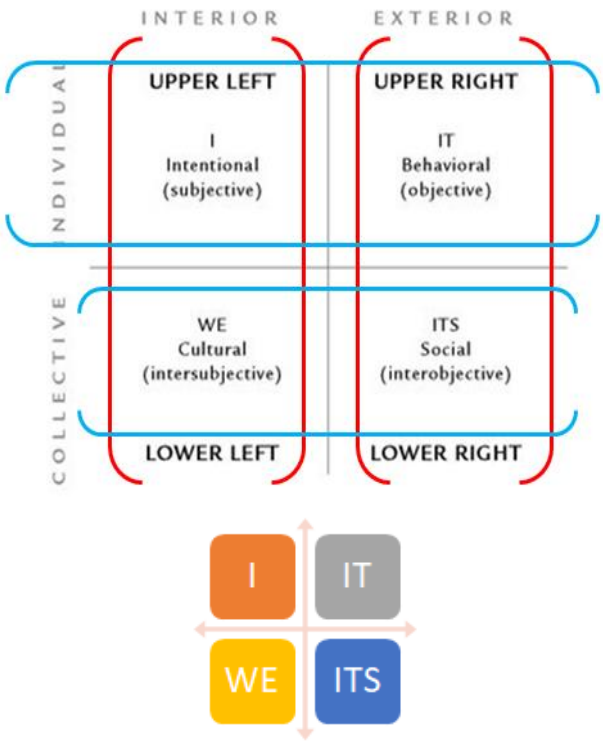


Figure 1. The concept of the integration theory model
Source: Authors from [1]

2. RESEARCH METHODOLOGY

The research presents a brief summary of the theory of integration in social studies and architecture. It explains the components of the four quadrants that make up the theory of integration. In order for the application of integration theory to be correct to cultural diversity, a specific, different group must be chosen within non-Islamic Western society. Therefore, Muslims were selected within European and American society. Islamic religious buildings (mosques) are a reflection of the presence of Muslims in a particular area. It represents a reflection of cultural diversity in the Western urban context. The theory relates to various aspects, individual, collective, subjective and objective, which cannot be represented by a single measure. Therefore, we need several types of measurements to complete the measurement of the four quadrants, and each measurement can be represented by a special questionnaire, the questions of which are formulated from what will be asked by the theoretical framework and by specialists in architecture and urban planning, as follows:

(1) A survey of the feelings and sentiments of the Muslim individual in Western society (First quarter questions).

(2) A survey on the relationship of the Muslim individual with Western society (Third quarter questions).

(3) A survey on a selected sample of two religious buildings that represent the behavior of the religious building (Second quarter questions).

(4) A survey of the relationship of the two elected religious buildings to the Western urban context (Fourth quarter questions).

Theoretical framework will be presented to identify religious buildings in the Western context. The theoretical framework will be adopted and experts will be asked about the topic to formulate questions. The answer to each questionnaire will represent one of the quadrants of the integration theory.

3. CULTURE DIVERSITY

Diversity is a set of conscious practices that involve understanding and appreciating the interconnectedness of cultures, and includes the recognition and maintenance of personal, cultural and institutional differences [4]. Cultural diversity refers to the coexistence of diverse knowledge, beliefs, arts, laws, customs, religions, languages, and ethnicities, and can extend to the way people interact with this reality and the way people choose to live together with this reality [5]. According to the book “Diversity: Dealing with Urban Diversity,” it is the presence or coexistence of a number of specific social, economic, demographic, ethnic, and cultural groups within a specific spatial entity, such as a city or neighborhood. Diversity is related to social cohesion, which is defined as the internal cohesion of a social system. Accordingly, sociologists such as Putnam (2007) tend to see diversity and heterogeneity as a challenge or even an obstacle to social cohesion [6].

Western countries saw relatively high levels of new people from foreign countries who contributed to new, previously unimaginable cultural landscapes. This has resulted in a variety of ethnicities and religions that have contributed to the production of multiple societies [7]. Cities are affected by cultural pluralism within one place and need to be seedbeds in which new social, economic, and technological ideas can be nurtured and developed [8].

At the turn of the 21st century, due to immigration, the population of Western countries has become more diverse, and minorities have become the majority in some cities. These countries are still grappling with proposing the best ways to deal with increasing diversity, including the urban planning profession [9]. Muslims have played a major role in influencing European and American cities, where their presence is represented through the progressive use and characterization of space and is most evident in the built urban environment because cities are artifacts that are shaped according to human activity and therefore in return they define human agency [10].

4. CULTURAL DIVERSITY IN THE URBAN CONTEXT

Context is the interconnection of a group of elements with the product that exists in different relationships. It is the interpretive reference that helps the recipient form an understanding and awareness of the built environment. It emerges as a highly valuable guide to the product, as it reproduces the past and directs society to what is important and new in the product [11]. Therefore, removing the architectural product from its system and the relationships it

formed with its surroundings works to cancel its function in conveying a specific meaning, and placing the product within a different system generates the ability to convey a different meaning [12]. Transplanting Islamic architecture in contexts other than its context will make us recognize new meanings of Islamic architecture [13]. Islam acquires new cultural forms, subjectivities and public visions as it moves from Islamic lands to Western countries [14]. This migration represents a spatial act that is almost a self-evident fact [15]. Muslims in migration face unprecedented issues, both in terms of their daily life experiences and in terms of Islamic theology and law. Muslims find themselves outside the Muslim lands (Dar al-Islam), following Islamic law in a secular environment, discussing it without an Islamic state and being treated as a minority. The displacement of Islam with resettlement in Europe changes the religious practices and subjectivity of Muslims and challenges citizens to redefine the place of religious difference in Europe [14]. Contemporary societies cannot be properly developed anywhere (spiritually and physically) without establishing the institution of the mosque as a community hub to support it, because it is one of the most visible expressions of global Islamic religious identity in Western contexts, and which reflects the cultural diversity of Muslim communities in the West [15-17].

So mosques, being the most visible signs of the process of spatial action, became part of the built environment in urban centers in these European contexts from the 1960s onwards. Their number, size and architectural characteristics were taken as an indicator of the stage of the stabilization process. The basic starting point in many studies is that the institutionalization of Islam is primarily a matter of adaptation, with attendant negotiations, planning and legal formalities [18].

Berlin's neighborhoods (Neukölln and its neighboring Kreuzberg district) have turned into Turkish ethnic areas for Muslims. In the late twentieth century, it witnessed a struggle by Muslim minorities to retain cultural ownership of the space. Likewise, the Tower Hamlets area in London, see Figure 2, where the East London Whitechapel Avenue Mosque is located, where students and artists settled in a predominantly Bengali area after the migration, which sparked urban studies in citing them as neighborhoods with attractiveness, diversity, creativity, and space [19].

Figure 2. East London mosque
Source: [20]

5. THE DIFFERENCES IN THE CHARACTERISTICS OF THE IMMIGRANTS' PLACE OF ORIGIN AND THEIR IMPACT ON THE IDENTITY OF ISLAMIC RELIGIOUS BUILDINGS

Language barriers and cultural differences have led to conflicts between Muslim groups over talent and cultural creativity in design [21]. Muslims in Rome consist of Arabs, Pakistanis, and Bangladeshis, and they use a variety of languages for prayer rooms, and this leads to the fragmentation of informal mosques as a result of linguistics, the settlement of immigrants, and the formation of local religious communities on the basis of ethnicity [22]. The partial influence of the urban designer is as follows:

5.1 The architectural impact of Muslim migration from north Africa to Europe and America

The architectural influence of North African mosques, inspired by the architecture of the Islamic Zaytazna Mosque in Tunisia, appears on the Grand Mosque in Paris. Some elements, such as horseshoe arches and green-tiled roofs, were borrowed from the Al-Qarawiyyin Mosque in Fez, Morocco [23], see Figure 3. The influence of Islamic architecture found in Arab regions has been greatly evident in mosques, not only in the European context but also in the Americas, as more than 40% of Muslims in America are Arabs [24].

Figure 3. The great mosque of Paris, France, 1926
Source: [25]

5.2 The architectural impact of Muslim migration from Turkey to Europe and America

The presence of Muslims in many European countries is characterized by the numerical spread of Muslim Turkish citizens and the intervention of the Turkish state in financing mosques and imams through the organization (DITIB) [26]. The Islamic religious buildings influenced by Turkey are characterized by the fact that they are a general idea of a classic Ottoman mosque, which is an image that was produced with components for different examples. The prime example of the use of an Ottoman-style mosque in the United States as a marker of Turkish Islam is the Turkish American Community Center (later called the Diyanet Center of America (DCA) in Washington, D.C. The complex was designed as a university campus). A multi-functional building surrounds the mosque [27], see Figure 4.

Figure 4. Diyanet center mosque of Americ, 2015
Source: [25]

5.3 The architectural impact of Muslim migration from the settlers of South and Southeast Asia to Europe and America

The post-colonial period saw Indian culture and architectural forms brought from South Asian regions with immigrants to British cities. Muslim settlers from South Asia transferred their concepts of space and built forms from their countries to new geographical areas. Culture went through stages of transformation as a result of its transfer to different environments. The new immigrants adapted and gave new meanings to the built forms of established urban traditions in European cities. Based on fixed notions of "cultural difference," these imperial structures led to the emergence of extreme and spatially separated geographical areas in Western cities, including British ones. The heterogeneous mix of South Asian Muslims' traditions and culture is reflected in integration methods in Britain. Often, a single identity is built that represents different ethnicities, for example, Bangladeshi, Pakistani, and Indian identities, or ethnic identities such as Gujarati, Punjabi, etc. [28, 29]. View Frishman described the Islamic religious buildings from India and Pakistan as having a Mongol style around a formal type with triple domes and a large courtyard, and Malaysia and Indonesia as religious buildings in the Southeast Asian style around a formal type with a sloping pyramidal roof [30]. Islamic styles intersect as Muslim communities in Britain become increasingly diverse, and as generations change they are likely to be less connected to places of origin and the visual cultures that accompany them [31].

Immigration and the traditions brought by immigrants to the Americas have a clear influence on the form of religious buildings and the nature of the impact on the surrounding urban space in terms of functions and spirit of place. The Islamic Community Center is a mosque for Pakistanis from South Asia. The influence of the Pakistani group is clear because the design elements of the mosque are very similar to those of the Shah Faisal Mosque in Pakistan [24] (Figure 5).

Figure 5. Models of mosques of South and Southeast Asian settlers
Source: [24]

6. CHALLENGES OF THE WESTERN CONTEXT

6.1 Location challenges

A site and urban perimeter study represents a visual assessment of features, landscaping, building character, and topographical features such as traffic, pedestrian movement, noise levels, and accessibility. A site study provides the opportunity to accomplish the following ground rules: (a) A careful assessment of existing site conditions (b) A complete assessment of all potentially problematic site conditions (c) A comprehensive review of sustainable environmental design considerations. The site area includes the footprint of the building and its organization with the context of the place, parking and service areas, landscape design and open spaces for social activities, how to access the religious building. It is carried out through a study of real estate and building data adjacent to the site and the use of the master plan to determine the Qibla axis [32]. Information about the site in the predominantly Muslim Northeast Ohio region reveals the impact of planning law on the structures and function of a mosque, including parking, green spaces, surrounding land uses, and current zoning codes. When sufficient spaces are available, they will give possibilities for form, structure, and additional functional spaces when they are not available (taking into account the law of height and the possibility of adding Islamic elements and other determinants of form and space). Contextual determinants and building codes impose leaving spaces around religious buildings for the sake of spatial separation from neighbourhoods, especially if it was residential. The empty spaces work to harmonize the facades of Islamic religious buildings that are different from the context with the urban neighborhoods and provide a potentially positive space that can be used for dialogue with the components of the place [24, 33]. One of the objections is that Local councils are reluctant to install religious buildings in place of retrofitted homes or factories due to the lack or insufficient parking, so in 1998 Worcester City Council twice rejected a request to establish a new mosque in the city. The East York Mosque made headlines when the council refused to rezone it. Due to the lack of sufficient parking spaces [34].

6.2 Environmental challenges

The built environment plays a fundamental role as a factor of climate change, so the exploitation of natural resources, energy consumption and waste management must be addressed in a more environmentally friendly way. A mosque is a religious building built everywhere on earth, which has led to the necessity of making mosques more sustainable and friendly to the natural environment. The study "Mosque Design Strategy for Energy and Water Saving" presented ways to apply passive design strategies by comparing the basic operational or architectural characteristics of mosques with sustainable building codes, and presented main design strategies for mosques, which are (1) building layouts and what they adopt in the double direction, one for the Qiblah and the other for Street context, (2) lighting strategy by reducing consumption and using energy-efficient lamps, (3) HVAC strategy, (4) water conservation strategy, (5) IT strategy [35].

Proper building envelope design that ensures optimal thermal performance is required to protect the interior from the harsh climate outside and to ensure better thermal comfort for the users [36]. The highest occupancy rate is observed during mandatory Friday prayers when the mosque is usually full, while daily prayers have a small fraction of full capacity [37]. Prayer halls are the place most in need of cooling, and their design is almost similar despite climatic and regional differences or cultural influences. The basic functional requirements of such a large prayer space coupled with the operational characteristics of intermittent and variable occupancy pattern play a determining role in the thermal

comfort of users as well as the thermal performance and energy efficiency [36]. The high level of energy consumption in the main prayer halls is related to the poor performance of the building envelope, which requires the heating or cooling systems to have a larger capacity than necessary and longer operating times [38].

The heat load from humans or equipment in mosques is negligible compared to the size of the mosque or Islamic center and the thermal comfort requirements associated with the functions associated with the mosque. The appropriate envelope design to maximize the thermal performance of a building is determined by the geographical location and other subsequent factors such as climate type, insolation, macro climate, micro climate of the site etc. Moreover, the thermal performance of a building depends on the overall performance of the building as the envelope parts act like walls. The ceilings, windows and openings come together as a system as a result of the synergy between the elements [36]. Al-Budaiwi found that the combined envelope parameters contributed 90% to the total heat load, while occupancy accounted for only 7% of the mosques' heat load [39].

6.3 Challenges of harmony with the urban context

The Western context affects every new religious building, on different levels: formal, functional, service, and even acoustic (most countries prohibit the sound of the call to prayer). It also affects the level of choice of place and the size of the lot granted by Western law to houses of worship, the use of common materials on the site, and other various structural controls [33]. Since Islamic religious buildings are often influenced by the building's users, their spatial origins, and the customs they transfer from countries of immigration, dealing with the urban context follows two approaches:

(1) Difference from the urban context by using the prevailing forms of Islamic religious building designs in Islamic countries, such as domes and minarets [30]. This made traditional designs linked to global Islam, "across national borders." It is linked to the phenomenon of separating "culture" from "religion" [40]. Or the styles present in the place are imitated if it contains Muslim groups, such as most mosques in Belarus. Built of wood, such as the Novogrudok Mosque, due to regulatory rules that allow churches to be built only from stone, wooden mosques have thus developed to become a symbol and distinctive feature of the Lipka Tatars [41], see Figure 6.

Novogrudok mosque/ Belarus

Central Mosque/ Lozells

Figure 6. Different forms of mosques in the urban context
Source: [41, 42]

(2) Similarity with the non-Islamic context. Local building materials are often used in religious buildings, modified and adapted from one function to another religious function, which takes the same local building material for the region in which the building was found. For example, many of America's modified mosques are the oldest structures of all types of mosques, and take the same building material of wood and concrete or wood and brick as buildings of the beginning of the twentieth century. As for modern mosques after the 1980s, they take materials from concrete and glass, or they take the same traditional material for the country of origin, such as brick [24]. Or modern methods similar to any social building are used, and thus these religious buildings are often called religious centers instead of mosques. The Moroccan Victory Mosque in Rotterdam represents a liberal building that fits its surroundings. The new design that was presented appears transparent through the extensive use of glass, taking into account dynamism and modernity in the design to fit the urban context [43], see Figure 7.

Al-Nasr Mosque / Rotterdam

Mosque in Bradford

Figure 7. Mosques similar to the urban context
Source: [29, 44]

7. BUILDING AN INTEGRATION THEORY MODEL FOR MEASUREMENT

Questions will be asked in the form of a questionnaire for each of the four quadrants of the integration theory, my agencies:

- The individual, subjective part of the upper left box of the Integration Theory (I): It can be represented by the thoughts and feelings of the Muslim individual in Western society, and is done by asking several questions related to individual subjective aspects, which can be answered by any Muslim person who has resided for a long period in a Western country. My agencies (Table 1):

Table 1. Information about the questions for the first quarter of the integration theory model

No.	Code	Question Content
1	X1	Do you, as a Muslim individual who lives in the West or has spent part of your life in Western society, feel that you are part of Western society and enjoy the citizenship law?
2	X2	Were you able to go to any mosque, religious center, or prayer hall in the West and pray there during your stay?
3	X3	Can you practice Islamic religious rituals freely in mosques, Islamic centers and prayer halls in the Western context?
4	X4	Do you prefer that the call to prayer be heard publicly in the West, or do you prefer to use other means such as telephones and traffic lights in Western society?

Source: Authors

- The individual objective part (the building) of the upper right box of the Integration Theory (IT): represents (the mosque, the Islamic centre, or any central building used for prayer), and is done by asking several questions related to the

religious building to specialists from architects and urban designers about the religious building based on Information related to the religious building, so that the following questions can be answered: (The questionnaire is provided with the shape, location, and plans of the Islamic religious building) (Table 2):

Table 2. Information about the questions for the second quarter of the integration theory model

No.		Code		Question Content
1	site challenges	Y1	Y1-1	Do you think that the location of the mosque is appropriate for the spatial structure of the urban context?
			Y1-2	Do you think that the mosque blends visually with the urban location?
			Y1-3	Do you think that the location of the mosque is easily accessible for Muslims (streets, public and private transportation)?
2	Components of the project	Y2		Do you think that the religious building fulfills the components of traditional mosques in Muslim countries in terms of (capacity for worshipers, ablution facilities, supporting functions such as study halls and shelters, and parking lots)?
3	Design philosophy	Y3	Y3-1	Do you think that the design philosophy was influenced by Western law and site and environmental constraints?
			Y3-2	Do you think that the religious building represents a religious icon in the urban context?
4	Function	Y4	Y4-1	Does the mass of the mosque appear clearly tilted from the urban context? (i.e. the mass of the prayer hall is tilted and affects the site, or does it appear harmonious?)
			Y4-2	Are the relationships of the internal spaces of the religious building clear, correct, and appropriate to the appropriate spaces?
			Y4-3	Do you think there are parking spaces for the religious building, and do you think they are sufficient?
5	Selected materials	Y5	Y5-1	Do you think that the materials used in the interfaces are consistent with the context of the site?
			Y5-2	Are the materials used in the facades local or express the familiar language of mosques in Muslim countries? (Local / meaning yes) (similar to the language of mosques in Muslim countries / meaning no)
6	Environmental performance	Y6		Do you think that the mosque was designed according to the principles of energy conservation and environmental sustainability?

Source: Authors

- The self-collective part of the lower left box of the integration theory (WE): concerns Western society, and represents the extent to which Western society accepts Muslims and their recognition of the right to Islamic places of worship in the Western context, and is done by asking several questions related to Muslims and their dealings with foreigners and other ethnic minorities from social aspects, It can be answered by any Muslim person who has lived for a long time in a Western country (Table 3).

Table 3. Information about the questions for the third quadrant of the integration theory model

No.	Code	Question Content					
1	Z1	Do you think that there is a kind of privacy enjoyed by Muslim societies in the West?					
2	Z2	Do you think that there is interaction and cohesion in one society between Muslims and Western society?					
3	Z3	Do you think that a mosque in the West can represent a link between Muslims and non-Muslims?					
4	Z4	What does a house of worship represent for the Muslim community in the West? Answer the questions you think are most appropriate (more than one answer may be chosen)					
		Z4-1	Z4-2	Z4-3	Z4-4	Z4-5	Z4-6
		Religious building (rites)	Social center	A school for teaching Arabic and the Qur' an	Social solidarity	Holding various events	Shura Council for the Muslim community
5	Z5	If you live for a long time in the West, do you try to change your residence to be near Islamic places of worship, or do you prefer to live in other residential neighborhoods and move to the place of worship when praying?					
6	Z6	Answer the following questions about what you often see on the urban landscape of cultural diversity policy in Western countries regarding the formal characteristics of mosques:					
		Z6-1		Z6-2		Z6-3	
		Recognizing the traditional formal characteristics of Islamic mosques can be observed in the Western context		The religious building has the characteristics of dynamic flexibility and harmony with the context of the urban site		Freedom from stereotypes of the traditional form of mosques and preference for modernity and different forms of mosques that do not use high symbolism (dome, minaret...)	

Source: Authors

- The thematic part of the lower right box of the Integration Theory (ITS): It concerns the urban context or the overall system of the religious building with the urban site (its influence and being affected by it), and is done by asking several questions to specialists from architects and urban designers about the urban context based on the information that is provided to them. In order to answer the following questions (Table 4):

Table 4. Information about the questions for the fourth quadrant of the integration theory model

No.	Code	Question Content				
1	A1	In what way does the Islamic religious structure affect the Western context? Answer questions				
		Effective				Ineffective
		A1-1	A1-2	A1-3	A1-4	A1-5

		Addition	Modulation	to Improve	Demolish or delete	-
2	A2	Do you think that there is a clear cultural diversity in the urban environment that appears through formal, vocal, cultural and legal expression? Answer the questions:				
		A2-1 Freedom of formal expression in urban space	A2-2 Freedom to display audio to announce prayer	A2-3 Freedom of cultural expression in urban space	A2-4 Managing the law to achieve cultural diversity and achieve social justice	
3	A3	Do you think that the Western context affects the Islamic religious structure and has a role in causing some kind of changes on the formal and functional level...etc.? Answer the questions:				
		A3-1 Formal	A3-2 Functional	A3-3 Services	A3-4 Area and location parameters	A3-5 Materials	A3-6 Law and building controls	A3-7 Ineffective
4	A4	Do the empty spaces around the religious building affect and serve as spaces for social interaction? Please move to the second level.				
		A4-1 The Islamic religious building interacted formally with the urban neighborhoods	A4-2 Creating spaces around the religious building for dialogue with the components of the place	A4-3 Spatial separation from the urban context		
5	A5	Do you think that the pluralism of religions in the Western space represents a positive situation for Western societies?				

Source: Authors

8. RESEARCH SAMPLES

A sample group will be selected according to the following conditions:

(1) To be in one country in order to make a comparison.

(2) That the religious building serves a large group of Muslims, and represents a visual landmark that has an impact on the urban environment.

(3) The selected samples are from different areas with different uses, including in the middle of a residential neighborhood, some with mixed use, and some on main roads.

8.1 Westermoskee/ Amsterdam/ Netherlands, 2015

8.1.1 Site challenges

It is located in the western city of Amsterdam - on the bank of the Schinkel River covered with canals, on a site of 800 square meters, part of a residential urban context. On a scale that respects the dimensions of the urban location. The mosque is part of a planned and designed urban dictate [43, 45].

8.1.2 Components of the project

The religious building consists of a prayer hall that can accommodate 1,700 people, teaching halls, ablution places, outdoor corridors, and a parking lot within the urban setting [45].

8.1.3 Design philosophy

Inspired by the ideas of the Amsterdam School / neoclassical architecture style with Ottoman architecture, it has one main dome and semi-domes around it, and a 42-meter-high spire minaret, and has traditional domed porticoes similar to what is found in Muslim countries (Ottoman architecture), but in dealing with the materials and context of the site [45].

8.1.4 Function

An Islamic religious building designed by French architects Marc and Nada Breitman [43].

8.1.5 Building materials

Local brick materials [43].

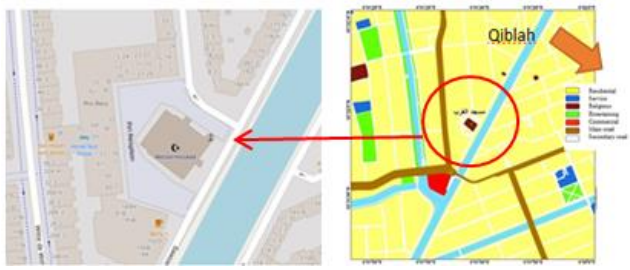
8.1.6 Environmental performance

A traditional design that mimics the heights and style of the urban context and site materials, with added arcades [43].

8.1.7 General information

The construction cost is 6-7 million euros. It is not allowed to raise the voice of the call to prayer [45] (Figure 8).

(a) Facade of Westermoskee



(b) The land use plan - shows the empty spaces around the religious building, and urban adjacencies

Figure 8. The Westermoskee /Amsterdam/Netherlands

Source: [43, 45, 46]

8.2 Essalam Mosque/ Rotterdam/ Netherlands, 2010

8.2.1 Site challenges

Located at the crossroads of outer and inner roads in the mixed-use area of Feijenoord, close to the de Kuip football stadium with an area of 800 m^2 [47].

8.2.2 Components of the project

Area 800 m^2, program requirements were up to 2600 m^2, it was decided to organize the building vertically. Therefore, the mosque consists of four levels. The ground floor has mainly a

non-religious function. The men's prayer halls are located in the central courtyard extending over the first and second floors, with an internal balcony that can accommodate 1,500 worshipers. On the third floor there are prayer halls for women. There are a library, imam's room, offices, classrooms, guest room, cultural events room and social activities and administration room on these levels. The prayer halls are connected by a central well and natural light enters through the large central dome, 25 meters high and supported on four columns. The height of the minaret is 50 metres [16, 47].

8.2.3 Design philosophy

It appears in the style of Mamluk architecture of the fifteenth century found in Egypt - it has a central dome and two pointed minarets, in white [16].

8.2.4 Function

An Islamic religious building designed by architect Wilfried van Winden consisting of three spaces merged together, the prominent entrance on the western side, the prayer room in the middle, and the semi-circular mihrab on the southeast side, and the three spaces are crowned with domes [16].

8.2.5 Building materials

The building is clad in colored natural stone panels and has alternating bluish-gray stone accents [16].

8.2.6 Environmental performance

An ordinary religious building, which does not use sustainable technologies for air conditioning and energy generation. With the exception of the light well under the central dome to illuminate the place during the day [16].

8.2.7 General information

The construction cost was 8 million euros. It is not allowed to raise the voice of the call to prayer [16, 47] (Figure 9).

(a) Facade of Essalam Mosque

(b) The land use plan - shows the empty spaces around the religious building, and urban adjacencies

Figure 9. The Essalam Mosque / Rotterdam / Netherlands
Source: [47, 48]

9. RESULTS OF THE FIRST AND THIRD QUARTER ON THE SUBJECTIVE ASPECTS OF THE TWO RESEARCH SAMPLES

The questions for the first quarter and the third quarter, which concern the individual and collective self-aspects, will be answered by distributing the questions to Muslim respondents who have resided in Western countries for quite a while. My agencies are:

Distributing the questions to 75 respondents showed that a large number of those who filled out the questionnaire were still in Western countries. The previous questions were answered by preparing them on Google Form (Table 5).

Table 5. Results of the first and third quarter on the subjective aspects of integration theory (number of respondents: 75)

Quarter Number	Main Variables	Secondary Variables		Percentage Score for Each Question			The Percentage of Answers Saying Yes, Somewhat Is 100%	The Percentage Is from 25%	The Final Percentage of the Field	
				Yes	Somewhat	No.			100%	25%
First Quarter	X1			41	32	2	97.33	24.33	93.33	23,3325
	X2			67	6	2	97.33	24.33		
	X3			69	6	-	100	25		
	X4			31	28	16	78.66	19.66		
Third Quarter	Z1			41	30	4	94.66	23.66	84.88	21.2
	Z2			24	45	6	92	23		
	Z3			42	24	9	88	22		
	Z4	Z4-1	59	75	-	-	100	75		
		Z4-2	59							
		Z4-3	43							
		Z4-4	48							
		Z4-5	35							
		Z4-6	34							
	Z5			27	14	34	54.66	13.66		
	Z6	Z6-1	11	11	49	15	80	20		
		Z6-2	49							
		Z6-3	15							

Source: Survey results

10. RESULTS OF THE SECOND AND FOURTH QUARTER, OBJECTIVE ASPECTS OF THE TWO RESEARCH SAMPLES

The questions of the second and fourth quarters, which relate to objective aspects, are answered by specialists in architecture and urban planning, numbering 25 respondents. The results are shown in Table 6 (Westermoskee) and Table 7 (Essalam Mosque) below.

Table 6. Results of the second and fourth quarters in terms of objective aspects of Westermoskee (number of respondents 25)

Main Variables	Quarter Number	Secondary Variables	Percentage Score for Each Question			The Percentage of Answers Saying Yes, Somewhat Is 100%		The Percentage Is from 25%		The Final Percentage of the Field	
			Yes	Somewhat	No					100%	25%
		Y1-1	21	3	1	96		24			
	Y1	Y1-2	23	1	1	96	96	24	24		
		Y1-3	20	4	1	96		24			
	Y2		25	-	-	100		25			
	Y3	Y3-1	15	3	7	72	86	18	21.5		
Second Quarter		Y3-2	24	1	0	100		25		77.66	19.41
		Y4-1	23	0	2						
	Y4	Y4-2	15	5	5	84		21			
		Y4-3	20	0	5						
	Y5	Y5-1	21	2	2	88		22			
		Y5-2	18	3	4						
	Y6		0	3	22	12		3			
	A1		21	4	0	100		25			
		A2-1									
	A2	A2-2	9	3	13	48		12			
		A2-3									
		A2-4									
		A3-1									
		A3-2									
Fourth Quarter		A3-3								88	22
	A3	A3-4	25	-	0	100		25			
		A3-5									
		A3-6									
		A3-7									
		A4-1									
	A4	A4-2	23	1	1	96		24			
		A4-3									
	A5		24	0	1	96		24			

Source: Survey results

Table 7. Results of the second and fourth quarters in terms of objective aspects of Essalam Mosque (number of respondents 25)

Main Variables	Quarter Number	Secondary Variables	Percentage Score for Each Question			The Percentage of Answers Saying Yes, Somewhat Is 100%	The Percentage Is from 25%	The final Percentage of the Field	
			Yes	Somewhat	No			100%	25%
		Y1-1	22	3	0				
	Y1	Y1-2	18	7	0	100	25		
		Y1-3	25	0	0				
	Y2		23	2	0	100	25		
	Y3	Y3-1	4	4	17	66	16.5		
Second Quarter		Y3-2	23	2	0			75	18.75
		Y4-1	25	0	0				
	Y4	Y4-2	10	12	3	96	24		
		Y4-3	24	1	0				
	Y5	Y5-1	1	13	11	56	14		
		Y5-2	9	5	11				
	Y6		0	8	16	32	8		
	A1		22	0	3	88	22		
		A2-1							
	A2	A2-2	14.7	-	10.25	59	14.75		
		A2-3							
		A2-4							
		A3-1							
		A3-2							
Fourth Quarter		A3-3						63.8	15.95
	A3	A3-4	16	0	9	64	16		
		A3-5							
		A3-6							
		A3-7							
		A4-1							
	A4	A4-2	0	7	18	28	7		
		A4-3							
	A5		20	0	5	80	20		

Source: Survey results

11. DRAWING THE RESULTS IN AUTOCAD

Table 8. Results of questionnaire for the research samples of Islamic religious

Name of the Research Sample	First Quarter Results	Second Quarter Results	Third Quarter Results	Fourth Quarter Results
Wester Moskee	93.33	77.66	84.88	88
Essalam Mosque	93.33	75	84.88	63.8
Average	93.33	76.33	84.88	75.9

Table 8 shows the final results of the general and specific questionnaire for the research samples of Islamic religious buildings according to the researchers. The results of the four quarters were plotted in AutoCAD to obtain graphics showing the results for comparison, as follows (Figures 10 and 11):

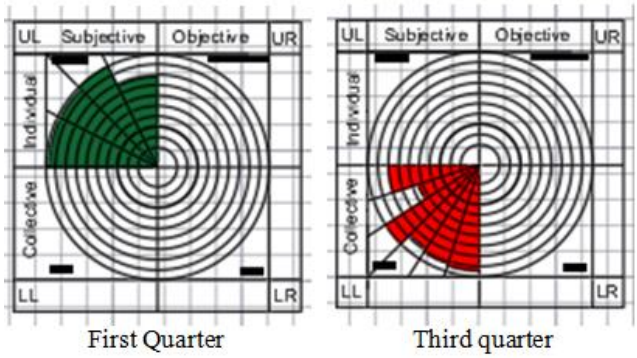
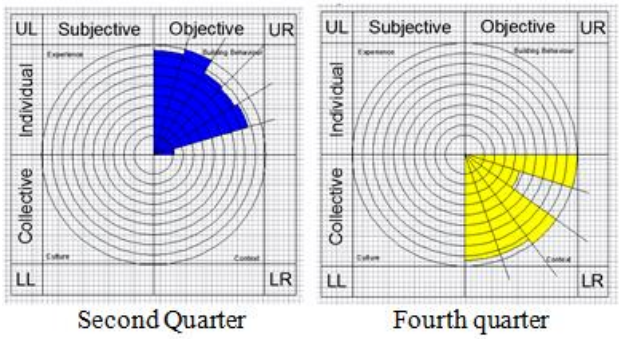
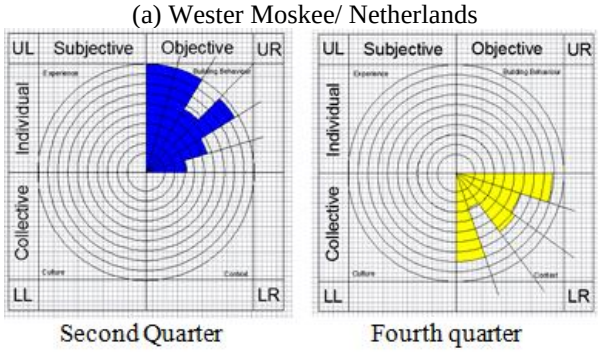


Figure 10. Results of the first - third quarter for the two research samples
Source: Authors - AutoCAD program



(a) Wester Moskee/ Netherlands



(b) Essalam Mosque / Rotterdam

Figure 11. Results of the second - fourth quarter for the two research samples
Source: Authors - AutoCAD program

12. DISCUSSING THE RESULTS OF THE SAMPLES SELECTED ACCORDING TO THE INTEGRATION THEORY MODEL

It is noted that the percentage of the first quarter is high (93.33), which relates to the individual's feelings in countries that are environmentally different from his country. The result follows the individuals surveyed because most of them are intellectuals who obtain appropriate rights and job opportunities in Western countries. The result of the third quarter (84.88) is also high, but lower because it is related to the relationship of the Muslim individual with Western society.

The second quarter result for the religious buildings was average in the two selected samples (77.66 -75). Because the religious building often does not have suitable spaces for events and functions that exist in religious buildings in Muslim countries. For example, when discussing the results of the first sample (Westermoskee), it is noted that the results of the second quarter are high and the building meets the conditions for correct design in the Western environment, with the exception of the sixth question (Do you think the mosque was designed according to the principles of energy conservation and environmental sustainability)? It is few because most Mosques in the West were not designed according to modern principles of sustainability and energy conservation. Therefore, its decrease affects the overall result for this quarter in the first research sample. This situation is repeated in the other sample.

As for the result of the fourth quarter, it was high in the first sample (88), except for the second question, somewhat average (Do you think that there is a clear cultural diversity in the Western urban environment that appears through formal - vocal - cultural - legal expression)? This is because the respondents may have considered the mosque to be in harmony with the Western urban context, but with limited freedoms. It is a copy of the Ottoman-style mosques and has a reduction in the size of the spaces. The high external harmony with the urban context is inversely proportional to the manifestation of formal and cultural diversity in the urban environment. As for the second research sample, the result of the fourth quarter was average (63.8). This is due to the fact that the result of the fourth question about the spaces for social interaction around the religious building is low because the building here is considered part of the policy of separation from the urban context despite the encouragement of the cultural diversity law. Also, the results of the second and third questions are somewhat average because the Western context affected the religious structure, but in certain aspects, but not all of them.

13. CONCLUSIONS

(1) The results on the subjective aspects give importance to cultural diversity in the Western urban context, where the individual feels freedom and citizenship in expression and the possibility of practicing religious rituals freely.

(2) The results related to the religious building confirm the necessity of building controls that take care of the building's areas according to the number of worshipers, and the quality of the material used that is appropriate to local materials and consistent with the context, with the necessity of saving energy. All this within respect for the religious symbolism of

Muslims.

(3) The need to encourage multicultural planning to ensure cultural diversity in certain neighborhoods to encourage intellectual openness and coexistence of diverse individuals with each other.

(4) The different levels of growth in the integration theory model mean that adding any question to the model can change the results. So that one side prevails over another, and this is the goal of meta-theories in that they deal with information in a relative manner according to developments and change in society and the context in which the religious building is built, as well as with theories that overlap with each other and different methods of calculation. Thus, all results are relative and may change if the research is directed in a different direction, or a different scale is used to measure the urban context or any quadrant of the theory with a mathematical program or specific equations to reach results that focus on the subject of any similar study with different or similar indicators.

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