

Original Research Article

An Evaluation of the Behavior Settings in the Territory of Sacred Places Case Study: The Peripheral Territory of Hazrat Masoumeh's Holy Shrine*

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Abstract

Problem statement: In the pilgrimage hierarchy to the holy shrines, pilgrims are objectively and subjectively influenced by the environment-behavior system when passing through behavior circuits, and this overshadows their behavioral patterns. The principle of synomorphy and congruence of physical structures with behavioral patterns in the milieu-behavior form or behavior settings, which play a key role in enhancing the quality of spiritual territories with the role of pilgrimage, has been less discussed.

Research objective: This present study aims to identify and measure the synomorphy of behavior settings in the territory of sacred places by examining the areas specified for the pedestrianized pilgrimage to Hazrat Masoumeh's holy shrine as a case study.

Research method: The present study is the mixed-method research (quantitative-qualitative) carried out using a descriptive-analytical research method. For data collection, library and field methods were used at five intervals in six months. The data were collected through direct observations by a trained observer, behavioral mapping and tracking, photography, and questionnaires. Then the data were analyzed using deductive-inductive reasoning.

Conclusion: The research findings indicate that the behavior settings of this territory with various programs and functions present a range of both compatible and incompatible behaviors with the context. In recent years, the policy of creating pedestrianized areas has promoted the synomorphy of the fabric by establishing religious rituals in this territory as the most important standing pattern of behaviors in this religious setting. However, the weakness of the physical structure in responding to some static behavioral patterns in usual and specific days, indicates that the physical structure of these behavior settings is not sufficiently compatible with all the needs and activities of the pilgrims. So, the redefinition of these behavior settings as pilgrimage areas requires more design considerations according to the principle of milieu-behavior synomorphy and considering the pilgrimage culture of this territory.

Keywords: *Territory of sacred places, Behavior settings, Hazrat Masoumeh's holy shrine, Qom city.*

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was conducted under the supervision of the Dr. "Bahador Zamani" and the advisement of the Dr. "Homayoon Nooraie" at Art University of Isfahan.

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Introduction

In recent decades, as a result of the effects of the environment built on the activity and behavior of users, the significance of the environment-behavior relationship in this environmental psychology has been centered by architects and urban designers. By creating a platform for urban design and providing a multi-level, interdisciplinary, social, and at the same time ecological strategic approach, environmental psychology attempts to explore the relation between the characteristics of the physical environment and human reactions (Nasar, 2011, 165). In this regard, to achieve desired functions such as the range of activities or social interactions to communicate with the environment, urban designers must create appropriate facilities and opportunities for users according to the ecological approach (ibid.). According to Barker's theory, ecological psychology is related to the concept of behavior settings. The most vital contribution of Barker and his colleagues in environmental psychology is the identification of a "Natural Environmental Unit" called "behavior settings" and the development of the behavior setting theory (Wicker, 2002, 114). According to them, this theory is composed of a link between physical and social environments (Lawson, 2007, 23). Other researchers have referred to this as Behavior Circuits, Activity System, and Behavior Setting.

Among different behavior settings in the system of public territories, behavior settings with pilgrimage, religious, and ritual roles play a key part in responding to the transcendently spiritual needs of audiences. Due to its connecting role in guiding the pilgrims to pilgrim the sacred place, the chain of behavior settings in the territories of sacred places, makes pilgrims be objectively and subjectively ready when passing the pilgrimage path to the holy shrines. The territory of the holy shrine of Hazrat Masoumeh (PBUH) in the central core of Qom, as one of the most significant pilgrimage-spiritual territories in Iran, due to many behavior settings and various historical, cultural, and religious places in it, plays a

key role in attracting pilgrims and religious tourists with various cultures, subcultures, and customs, providing platforms rendering normal and abnormal behavioral patterns. Modifying the behavior settings in the pilgrimage territory according to the synomorphy of separate physical and behavioral structures enables the environment to generate opportunities and constraints to form the behavioral system of pilgrims according to the values of the context. Improving the environment to facilitate and encourage social and voluntary activities and behavioral patterns commensurate with the respect and dignity of the sanctuary and non-desecration of the religious and spiritual values of the field in responding to the primary and secondary needs of pilgrims and neighbors are essential in the study of these behavioral circuits. Consequently, the necessity of paying attention to the demands and spiritual, historical, and ritual values of behavior settings in the pilgrimage territories and their impacts on the behavioral patterns of pilgrims makes such studies critical and essential. Given the necessity explained and the problem at hand, The present article, to measure the degree of coherence of behavioral camps around the holy shrine of Hazrat Masoumeh (as) concerning the behavioral patterns of pilgrims, seeks to answer the question that:

"How and to what extent is the synomorphy of the body and activity in the behavioral camps of the realm of the holy shrine of Hazrat Masoumeh (as) concerning the behavioral settings of the pilgrimage?" To achieve this goal, after reviewing the background and theoretical framework of the research, approaches to environmental-behavior studies are discussed. Next, the selected evaluation framework of this research is reviewed based on Barker's opinions, and the research results are interpreted and concluded based on the behavioral and ritual-religious system of the studied territory.

Literature review

In the 1950s, ecological psychologists in Kansas have attempted to understand how people behave

in everyday environments by referring to ecological principles. They have discovered an ecological interdependence between behavior and the environment and found through their observations that most environmental situations were influential on behavioral mechanisms compared to personality attributes (Nasar, 2011, 168). Their work is one of the most extensive efforts to understand a broad scope of behavioral systems in society throughout the history of psychology (Nasar, 2011, 168 quoted by Heft, 2001). Based on this experience, Barker and his colleagues have formulated the theories of behavioral ecology and behavior settings (Francovich, 2008, 40). Barker has developed this theory to describe small-scale social systems as well as to study the behavior of the natural environment. This theory has become the cornerstone of many fields and research disciplines such as ecological psychology, environment-behavior studies, behavioral ecology, environmental psychology, and social psychology (Popov & Chompalov, 2012, 18). Ecological psychology and the theory of behavior settings, like any other paradigm, have been changed and modified over time. Part of these alterations have been due to critiques and disputes by rival paradigms, and the other essential part has been because of the internal developments of ecological psychology and its researchers (Golrokh, 2012, 4). Scott (2003) has considered one of these groups to be classicists and the other to be the proponents of this school (the extenders); Classicists (such as Lewis Barker, Schoggen, and Gump) still believe in the validity of Barker's theory of behavior settings, and maintain that ecological psychologists must continue to do so. Whereas the extenders (such as Wicker, Willems, and Bechtel), while maintaining Barker's theory of behavior settings, believe this theory needs to be extended. However, what each of them has added to it differs from the other (Scott, 2005, 303 quoted by Golrokh, 2012, 50). In the next steps, by examining and recognizing the features and aspects of behavior settings in the human living environment and scrutinizing the related notions,

theorists have introduced two prominent theories of "Environment Affordance" and "Environment Invitational". The concept of "Environment Affordance" means that different environments must have their own unique features to render potential conditions for particular human behaviors. According to Zhang (2006), the formation of environmental affordances is influenced by internal (physical, cognitive, perceptual, and biological) and external (physical, symbolic, spatial, temporal, and chemical) factors. The concept of "Environment Invitational" is realized through the natural and built environments and with the knowledge of visual and non-visual environments. The combination of environment, visual, tactile, auditory, and olfactory motivations is the affordance of the built environment for supporting and limiting certain behaviors (Bandarabad & Shahcheraghi, 2017, 105-116). Figure 1 displays the theories resulting from behavior settings and the factors affecting them.

Figure 1 Theories resulting from behavior settings and factors affecting them, derived from Bandarabad and Shahcheraghi (2017) Lately, environmental psychologists have begun to study the influence of natural and built contexts on users' spiritual experiences. However, there are some deficiencies in studying the emotional and behavioral effects of religious behavior settings on users (Meagher, 2018, 2). Among the studies on the settings with religious and ritual functions, for instance, one can mention the following. Abioso and Triyadi (2017), in their research entitled "The Behavior-Milieu Synomorphy of Communal Space in Desa Adat Tenganan Pegringsingan Bali Indonesia", have studied the standing patterns of Indonesians' religious and non-religious behaviors in religious behavior settings by focusing on the physical milieu-behavior synomorphy. Meagher (2018), in a study entitled "Deciphering the religious orientation of a sacred space: Disparate impressions of worship settings by congregants and external observers", has investigated users' impressions of 23 religious behavior settings (churches). This

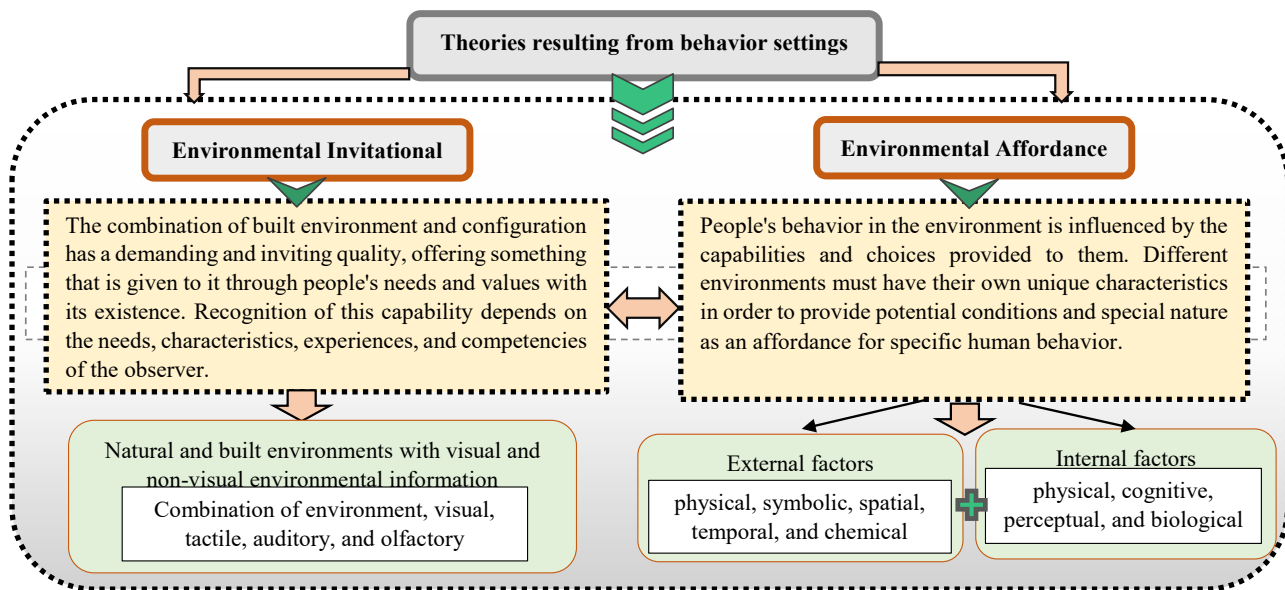


Fig. 1. Theories resulting from behavior settings and factors affecting them. Source: Derived from Bandarabad & Shahcheraghi, 2017.

study has revealed that worship spaces as religious behavior settings can generate greater feelings of restoration, satisfaction, and more positive emotions among congregants. Mazumdar & Mazumdar (2004) have also studied how the physical milieu and space of Hindu temples are designed following worship practices to facilitate the holding of rituals including specific religious activities and practices. Their studies have revealed that it is required to establish a synomorphy between the structure of space and socio-religious life and this calls for arrangements in design.

As examples of domestic studies on religious behavior settings, one can mention the following. Seghatoleslami & Rohi Mirabadi (2020), in their study entitled “Analysis of the Urban Spaces around the Holy Places on the Needs and Behavioral Patterns of Pilgrims; Case Study: Imam Reza (PBUH) Street, Mashhad City,” have examined the adaptability of urban spaces around holy places to the needs and behavioral patterns of pilgrims in a survey. The results have shown that in more than half of the environmental criteria, pilgrims’ satisfaction is at the improper level. Motalebi, Eslami, Taheri, Gordi Takhti, and Mahdavi (2016), in their study, entitled “The Evolution of the Perception of Meaning of Imam Reza Shrine over Time,” have highlighted the

changes in the semantic aspects of perception of the fabric surrounding the holy shrine of Imam Reza (PBUH) over time by evaluating it in cognitive, emotional, interpretive, and evaluative dimensions.

The results have indicated that owing to the low capacity of the current fabric surrounding the holy shrine, the highest impact on people’s desire to change the environment lies in the cognitive, interpretive, value, and emotional dimensions, respectively, showing a lack of attention to the perceptual aspects of meaning, particularly in the cognitive dimension, which helps make the environment more meaningful. Additionally, Ranjbar Taklimi (2016), in his master’s thesis entitled “Urban design around the Mosalla pit complex to enhance Presence emphasizing the citizens’ Behavioral Pattern,” has attempted to explain the criteria for modifying the urban pilgrimage space as a platform to promote proper behavioral patterns responding to the demands of users, and to increase public attendance. Rajabi, Noqsan Mohammadi, and Montazer Al-Hodjjah (2019), in their study entitled “Functional Patterns in the Spaces of Hosseiniehs of Taft,” have attempted to obtain a functional pattern by examining the behavioral patterns of communal rituals and religious rites in the Hosseiniehs of Taft. Results have revealed that establishing a relation

between the behavioral patterns of communal rituals with the spaces in the Hosseinieh forms shared collective memories and provided opportunities for social interactions, leading to the interaction between the physicality of the building and the content of the rituals. The review of international and domestic studies shows the inadequacy of studies on the behavioral system of settings with a focus on pilgrimage territories. Moreover, most studies have analyzed the architectural unit of the sacred place, and the behavior settings surrounding these places have less been considered. Additionally, no such studies have been performed on the fabric surrounding the holy shrine of Hazrat Masoumeh (PBUH), while the features of this fabric and the needs of its audiences make it essential to concentrate on such studies.

Behavior setting, and its elements and characteristics

The concept of behavior setting deals with people's behaviors and experiences in their everyday lives in the real-world environment. The human and physical elements of this concept act in such an organized way that has the activities happen in a regular system (Golrokh, 2012, 6-9). Theories related to the behavior setting are generally examined in three principal aspects of design: social interaction, affordances of physical space in shaping behavior, and physical milieu-behavior synomorphy (Salehinia & Memarian, 2012, 8). According to Wicker's theory, characteristics that empower behavior settings include meta-personal nature, interdependence, self-regulation, and role-provisioning. Figure 2 describes the elements and characteristics that empower behavior settings based on the theories developed by Barker and Wicker. According to Barker, the behavior setting is a stable combination of activity and place, the most critical elements of which are described below.

• A standing pattern of behavior

According to Lefebvre's analysis, spatial systems need conditions where not only the physical order

of things but also the socio-psychological behavioral patterns that shape the human psychological environment, are of great importance (Sheldrake, 2007, 244). A standing pattern of behavior is a recurrent and controversial quasi-object and acts as the core concept or main structure of the behavior setting. Barker describes standing patterns of behavior as a behavior circumjacent and synopomorphic or fitting to the environment (Francovich, 2008, 42, 1989).

• A specific design of the environment or physical milieu

Behavior settings are real entities with specific temporal and spatial boundaries, and there is congruence between their physical elements, user behavior, and event program (Wicker, 1979 cited in Nasar, 2011, 168). They are created by individuals' common behaviors in relation to the characteristics of the environment (environment capacity) (Heft, Hoch, Edmunds, & Weeks, 2014, 371). Barker has described the framework or structure of the behavior setting with physical boundaries, things and objects, natural factors, sensory stimuli, and physiognomic perception (Tafakkor, Shahcheraghi & Habib, 2019, 108).

• The milieu-behavior congruence or synomorphy

In a drug store, people show "drugstore behavior," while in a gymnasium, they exhibit "gymnasium behavior". Such standing patterns of behavior arise from the socio-physical, as well as time characteristics of places (Nasar, 2011, 168). In other words, these behaviors happen in a milieu, and the milieu matches the behavior (Francovich, 2008, 42). 4. Specific period: In the incident and creation of behavior settings, items such as temporal locus, serial occurrence, and duration are of great importance so that they may be repeated only once a day or according to a specific program (Golrokh, 2012, 34).

Behavior settings in the spiritual and pilgrimage settings

According to Lawson (2007), a behavior setting

consists of space, its surroundings, its content, its users, and its activities, which can be an integral part of specific territories. This definition can be generalized to the specific territory of sacred places. The constituent territory of a sacred place, taking into account its numerous behavior settings and countless audiences, is a ground for the emergence of synpomorphic behaviors and activities with the environment, whose multifacetedness makes it an ideal ground for dynamic and constant interactions (Wing, 2015, 22). The sustainable combination of activity and place in behavior settings with religious and pilgrimage roles is briefly described below.

• A standing pattern of behavior

Repetitive behaviors in the behavior settings of religious territories are created considering the holding of rituals and rites, religious doctrine, spiritual values, and spatial limitations (*ibid.*). These settings are a criterion for specific groups of audiences, socially or culturally. The specific ritual activities may happen regularly, or where people visit the sacred place for spiritual meaning (Serageldin, Shluger, & Brown, 2001, Xiv). Their function typically includes spiritual practices and activities, usually representing the symbolism of their own culture in holding rituals and rites. In other words, they act as a ground for social gatherings and religious celebrations (Wang & Ho, 2011, 33); such that their sacred structures can strengthen the social bonds between the participants - as is always the case in some religions, particularly Islam, sacred places are considered as social places (Mazumdar & Mazumdar, 2004, 390).

• A specific design of the physical milieu

Studies by environmental psychologists with approaches to gaining spiritual experiences through natural and built contexts in religious behavior settings have revealed that specific characteristics of the physical milieu can lead to the excellent experiences of users (Meagher, 2018, 2). In other words, in the case of built environments, the concept of spirituality of place makes it possible to obtain more meaning from the environment through the

physical design (Birch & Sinclair, 2013, 80). Eliade (1996, 1998, 2014) considers the specific design of the physical milieu of the sacred territories in the presence of pauses and ruptures, horizontal and vertical hierarchy, boundaries and thresholds, signs and symbols, the geometry of centralism, and introversion. Barrie puts some of these in this way: "clear delimitation of place, an articulate approach, entry and path sequence, the ordering of the place through geometry and proportion, and use of different symbolic relations of representation" (Barrie, 2012, 80). Moreover, according to Wang and Ho (2011, 37), these physical characteristics often include centralism, orientation, territoriality, and stratification. Other concepts such as unity, organization, creativity, uniqueness, manifestation, the possibility of exploration, originality, balance, harmony, and naturalism can also be related to form, space, and order (Birch & Sinclair, 2013, 82). The stated items related to the physicality of the behavior settings in the territory of sacred places play a key role in mentally preparing pilgrims and devotees before entering these places.

• Behavior- physical milieu synomorphy

It is required to establish proper synomorphy between the structure of the physical milieu and religious activities in religious behavior settings designed to facilitate religious rituals, (Meagher, 2018, 3) to lead to congruent behaviors in the behavior setting. The physical structure of behavior settings in the territory of sacred places must provide the affordance of the behavior setting in performing five principal activities of pilgrims or neighbors: 1- pilgrimage to the sacred place (on foot); Participation in religious rites and rituals; 2. Movement (motor vehicles) and pedestrian and vehicle motion exchange; 3. Standing, sitting, walking, and meeting in space; 4- Shopping (the daily needs and souvenirs); 5- Spending leisure time and enjoyment (Seghatoleslami & Rohi Mirabadi, 2020, 207).

• Specific period

Temporal locus and serial occurrence play an

essential role in the emergence of behavior settings in spiritual territories. The most significant standing patterns of behavior in this category of behavior settings happen in daily, weekly, monthly, and annual religious and ritual ceremonies. The temporal serial occurrence in the spiritual territory of these settings shows the significance of context and religion (Fig. 2).

Research methodology

Ideas obtained from ecological psychology have played an essential role in developing useful research concepts and methods in urban design. To expose the individual-environment relation, ecological psychologists have taken different approaches to observe behavior in different situations through different assessments (Nasar, 2011, 169). Table 1

presents the most critical approaches in the field of behavioral studies.

This study aimed to measure the synomorphy of the surrounding behavior settings of the holy shrine of Hazrat Masoumeh (PBUH) concerning the behavioral patterns of pilgrims as an example with the ability to provide a variety of normal and abnormal behavioral patterns. After examining the literature and background of the research subject, the conceptual research framework for the peripheral territory of the holy shrine was developed based on Barker's theories. Data were collected using a mixture of library-documentary and field studies through non-interventional observation, behavioral mapping, tracking, photography, and questionnaire. Measures and methods of data analysis have been done with the help of deductive-inductive reasoning.

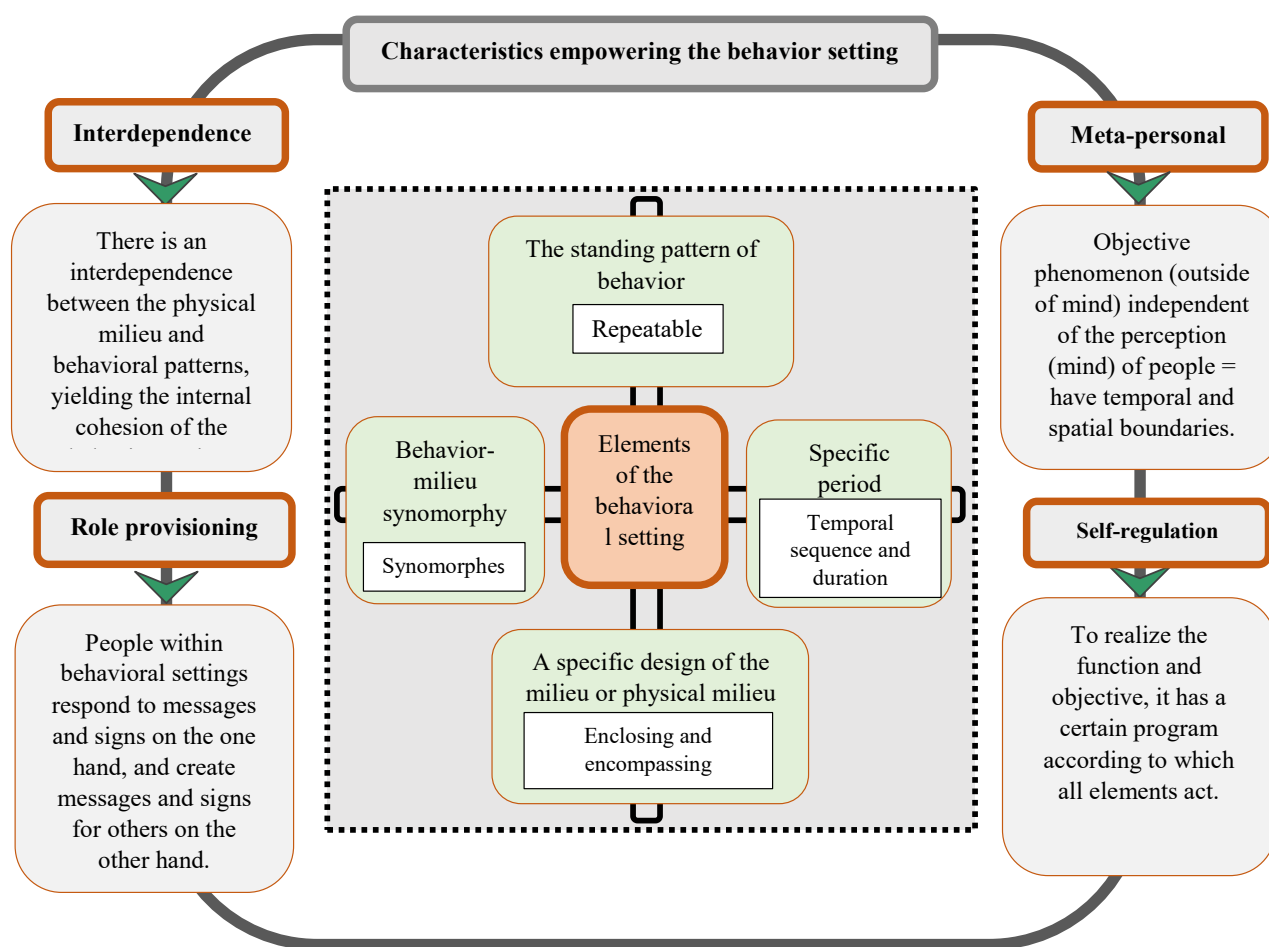


Fig. 2. Elements and characteristics empowering behavior settings. Source: Golrokh, 2012.

Table 1. Approaches applied in behavioral studies. Source: Authors.

Qualitative and quantitative tools			
Mapping	To mark the number and type of activities, and where people are sitting, standing, etc.		Behavioral mapping is a non-interventional and objective observation method for measuring the actual use of space and indicating behavioral patterns in a given space. This method is normatively presented to improve the quality of relationships between people and the environment (Moore & Cosco, 2010, 34).
counting	Counting for 10 minutes once an hour	Handheld counters Marking	Numbers and figures of everything that can be counted. This method provides numbers for making comparisons before and after, between different geographic areas, or overtime to be used to qualify the processes and as arguments in decision making (Gehl & Svarre, 2017, 25).
Tracing	10 minutes or half an hour		Tracing means drawing lines of movement on a map. People’s movements must be recorded under the full view of the observer. The observer draws the line of movement on the map and during a specific period (ibid., 34).
Direct observation	As a general rule, users are not asked directly and only observed and their behaviors are registered. The observer must be active and neutral - like a director who skillfully directs the scenes and does not show off (ibid., 5).		
Test walk	To create a test walk map by recording behavioral perceptions on the map		For a test walk, the observer moves along a specific path and identifies items such as waiting times, total travel time, potential obstacles, or deviations. This method is a powerful tool for improving pedestrians’ traffic conditions (ibid., 34).
Photographing	To plan 5-sec intervals to record movements		Considering the area of the study space, one to three cameras are used simultaneously for photography. The selected interval is proportional to the registration of pedestrian movement (Bahrainy, 2012, 57).
Keeping a diary	To register activity descriptions with text, diagram, or on the map with additional details		The observer records his observations instantly and systematically so that more details beyond quantitative sampling are added to qualitative studies. Anything related can be noted: explanations about how to sit and stand, a short account of understanding the position of the place, and the flow of life that is not necessarily intended in the study (Gehl & Svarre, 2017, 32-33).
Tracking (shadowing)	Being placed above the street level and following people		Ecological psychologists record something to discover the human-environment relation by taking sample notes and following people: what users have said; what they have done; what people have said to them or what they have done with them and where they have been. Meeting notes focus on recording behavior in a behavior setting (Nasar, 2011, 169); In fact, in addition to standing in one place to register people’s movements, the observer can follow specific people to register their movements. This method is suitable for measuring the walking speed and registering where, when and what certain activities take place along a path (Gehl & Svarre, 2017, 28-29).
	Ability to use the pedometer		
	Use GPS data to track selected individuals		
Looking for traces	Photo Map Counting	Human activities usually leave traces (such as dirty traces on the street or trampled paths over grass) that provide the observer with information about urban life and patterns of activity (ibid., 24).	
Interview	Interviewing users is a method that allows getting acquainted with their thoughts, preferences, and concerns in the behavioral system analysis (Bahrainy, 2012, 245, Nasar, 1990 quoted by bahrainy, 2012).		
Questionnaire	Because of the methodological challenges faced by behavioral perceptions, researchers sometimes use questionnaires instead of behavioral observation as the usual method of data collection (Hill, 1984, 540).		

In the qualitative part, reasoning and deduction were used to interpret behavioral perceptions. In the quantitative part, the statistics of mean, median, mode, and "sign" tests were used to analyze the statistical information of the questionnaire using SPSS23. According to Cochran's formula, the sample size was estimated at 172 people. The samples were randomly selected from pilgrims and neighbors in a survey design. Behavioral perceptions showed different results depending on the type of

period, type of program, and context of the territory. To observe all possible conditions influencing the observations, behavioral perceptions were obtained in five different periods: 1. Ashura day (the most important religious occasion of the city); 2. Tuesdays (because Qom is a pilgrimage destination on this day as a special day of pilgrimage to the Holy Mosque of Jamkaran); 3. Thursdays (as the busiest day of the week); 4. Fridays (holiday); and 5. The 22nd Bahman (political and social occasion),

respectively. These perceptions were obtained in a period of six months, from August 2019 to February 2020. Behavioral perceptions were obtained in the period of 11 am to 9 pm (the period of activity of pilgrims and neighbors in the peripheral territory of the holy shrine) and included the serial occurrence of the Dhuhr and Maghrib Adhans. The output of the observations is presented in the form of behavioral Mapping and observation report tables. Fig. 3 reveals the research process.

The conceptual framework for observing behavior settings in the surrounding fabric of Hazrat Masoumeh's Holy Shrine

The pattern of observation of behavior settings

around the holy shrine in accordance with Barker's proposed framework is shown in Table 2. The survey method was used in the analysis of social and self-regulatory behavior patterns in behavior settings, to achieve more accurate results from the users' point of view, in addition to behavioral perception.

Introduction of the case study

The peripheral fabric of the Holy Shrine of Hazrat Masoumeh (PBUH), with its many behavior settings, welcomes constant daily, weekly, monthly, and annual optional and social activities of pilgrims of various ages and gender groups. The Eram pedestrian walkway, the Enghelab pedestrian

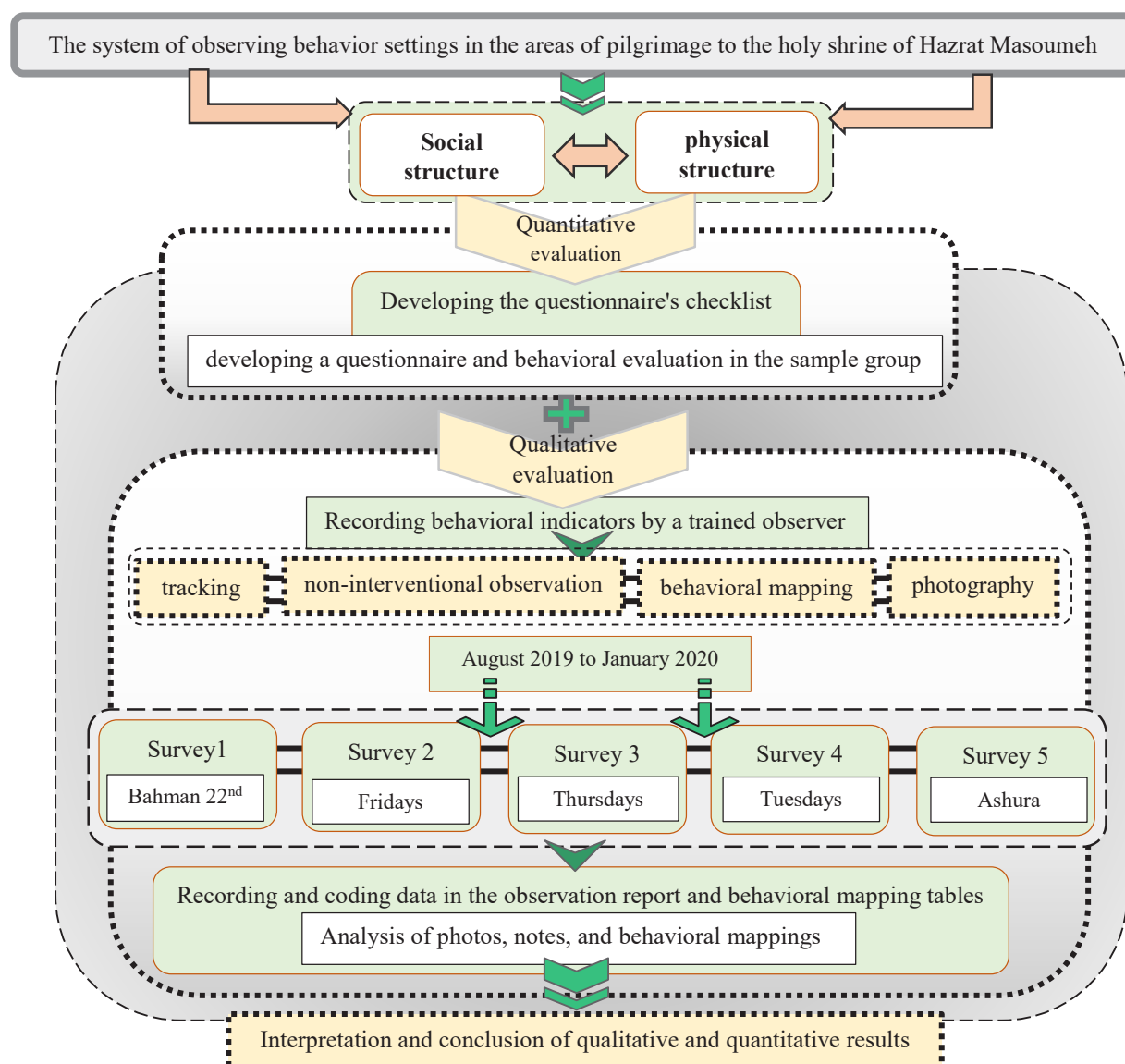


Fig. 3. The research process. Source: Authors.

Table 2. Framework for observing the surrounding behavior settings of Hazrat Masoumeh's holy shrine. Source: Authors.

Quantitative and qualitative observation pattern of ecological structures in the surrounding behavior settings of Hazrat Masoumeh's (PBUH) holy shrine					Tools	
Behavior-Social structure	Activity pattern	Necessary	The level of major necessary activities in the behavior settings of the shrine of Hazrat Masoumeh (PBUH)		Behavioral perceptions	
		Optional	The level of major optional activities is compatible and incompatible with the role of behavior settings in the religious territory of Hazrat Masoumeh's Shrine			
		Social	Social interactions	The level of major social activities compatible and incompatible with the role of behavior settings in the territory		Questionnaire
				The amount of willingness for family presence in behavior settings for pilgrimage		
				The amount of willingness to participate in social and religious occasions in the territory of the holy shrine		
				The amount of communication with religious missionaries in the behavior settings of the Holy Shrine		
				The amount of willingness to socialize with others in the behavior settings in the territory		
		The amount of willingness to trade religious information in the territory of the holy shrine				
	Behavioral mechanism	The level of various behavioral mechanisms in behavior settings in the territory of the shrine of Hazrat Masoumeh (PBUH)			Various types of behavioral perceptions	
	Behavioral role	The level of different types of behavioral roles created for users by being in behavior settings.				
		The level of direct control of users' behaviors by special social observers in the settings as mandatory				
		The level of direct control to correct maladaptive behaviors (prevention of maladaptive behaviors)				
	Self-regulation	The level of social surveillance of spontaneous groups in case of norm-breaking behaviors (warning and restriction)				Questionnaire
		The level of social surveillance in case of the happening of behaviors unbecoming for the dignity of the behavior settings in the territory of the holy shrine				
		The amount of unconscious behavioral restrictions on pilgrims' pilgrimage by being in the behavior settings of the holy shrine				
	Behavior type	Individual	The most dominant individual behaviors in the behavior settings in the territory of the holy shrine			Various types of behavioral perceptions
		Collective	The collective behaviors in the behavior settings in the territory of the holy shrine			
		Setting programs	The various types of programs that can be defined for the behavior settings of this territory			
		Age groups	The age groups of the users of behavior settings in the territory of the holy shrine			
		Gender	Gender of the users of behavior settings			
		Type of period	The type of period during which behavior settings are used: permanent, long-term, non-permanent, and short-term			
physical structure		Spatial and local boundaries of the territory	Space Configuration	The spatial limits of the behavior setting and its spatial nature (facade, middle area, and both), paths, and pause nodes in behavior settings		
	Fixed			With fixed components of space such as fixed urban furniture		
	Movable			With moving components associated with behavioral patterns such as traffic, peddling, and so on		
	Furniture and objects	Different types of urban furniture fit for the ground and per the needs of pilgrims				
	Sensory stimuli	Sensescap status in behavioral camps in the territory of the holy shrine				
	Physiognomic perception	Objective and subjective perceptual system (this component requires detailed investigation through a separate study)				

walkway, the Bahar pedestrian walkway, Astane Square, and Imam Khomeini Square are the most salient behavior settings in this territory. These

settings are considered a ground for the occurrence of behaviors compatible and incompatible with the chief function of the territory as a guide for pilgrims

Rest of Table 2.

Quantitative and qualitative observation pattern of ecological structures in the surrounding behavior settings of Hazrat Masoumeh's (PBUH) holy shrine					Tools
Period	Temporal locus and Serial occurrence	Five times	1	Ashura day with special behavioral limitations on the day of mourning and increased presence of pilgrims and tourists	Various types of behavioral perceptions
			2	Tuesday (midday of the week) due to the attraction of pilgrims because of being a special day pilgrimage day in Jamkaran Mosque	
			3	Thursday as the busiest time of the week and coinciding with the weekly prayer program in the holy shrine	
			4	Friday as a normal day and a weekend	
			5	The 22nd Bahman as a political and social occasion with increased diversity of social activities	
			Attention to daily and weekly, monthly, monthly, and annual religious and ritual events in choosing the temporal locus of the perceptions		
Synomorphy	Physical milieu- behavior synomorphy	The physical status of behavior settings as the congruent context synomorphic with the behavioral patterns in the territory			Behavior and physical perception results
		Interdependence between the pattern of synomorphes in the behavior settings of this territory			

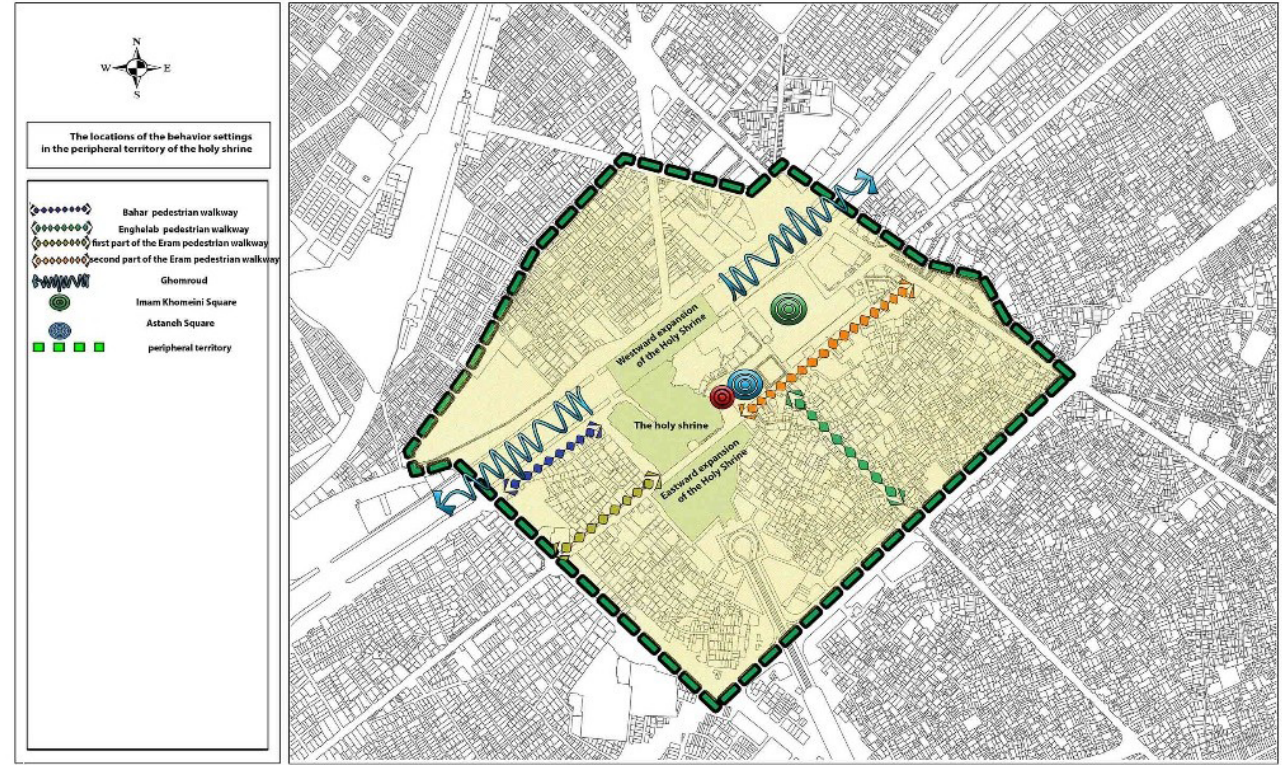


Fig. 4. The locations of the behavior settings in the peripheral territory of the holy shrine. Source: Authors.

for pilgrimage. Fig. 4 shows the location of the most critical behavior settings in the peripheral territory of the holy shrine.



Findings and discussion

• Behavioral perceptions

According to the observation pattern presented in

fig 5, the behavioral perceptions were obtained in the surrounding behavior settings of the holy shrine at five intervals. The results are briefly presented in the observation report tables. The colored cells in the table of each behavior setting indicate the presence or absence of the studied subject, and the hollow circle symbol refers to the predominance of

Fig 5. The observation report of behavioral perceptions in the surrounding behavior settings of the holy shrine. Source: Authors.

Imam Khomeini Square: A behavior setting with shopping program, the counter of the Holy Shrine, a place for socio-religious ceremonies, pause, sitting, social interactions, watching																																		
A sequence of behavioral perceptions	Age group		Gender		Current activities in the setting		Behavi or type		Term		Self-regulation		Periods		Mechanisms of the behavior setting								Limits of the territory		Spatial-temporal boundaries									
	Child	Young	Middle-aged	Old	Woman	Man	Necessary	Optional	Social	Individual	Collective	Long-term	Short-term	Low	Moderate	High	Morning	Noon	Afternoon	Night	Shopping	Pilgrimage	Motion	Pause	Leisure	Sitting	Watching	Wandering	Religious participation	Dialogue and interaction	Middle area	Facade	Fixed	Dynamic
Ashura																																		
Tuesday																																		
Thursday																																		
Friday																																		
22nd Bahman																																		
Normal behavioral patterns compatible with the setting's role			Walking for pilgrimage, emotional reactions to watching the holy shrine (pause, saying dhikr, respecting the shrine), sitting to rest, reading the newspaper, watching the showcases business activities, group stopping and chatting, participating in social events and religious, movement mourning groups for pilgrimage, stopping and watching mourning processions, shrine background photography, using and waiting for electric car and wheelchair for elderly pilgrimage, lighting candles on special days such as Ashura sunset, children playing, personal privacy, and watching the dome and the court of the shrine																															
Abnormal behavioral patterns incompatible with the setting's role			Smoking, loud verbal interactions at group stops of teenagers and young adults, motorcycle traffic in the field, physical contact (pushing) with others due to overcrowding on certain days																															
Astaneh Square: A Behavior setting with a predominant shopping function (especially souvenirs), through pilgrimage to the holy shrine from the south side, the counter of the holy shrine, a place for social convenience																																		
A sequence of behavioral perceptions	Age group		Gender		Current activities in the setting		Behavi or type		Term		Self-regulation		Periods		Mechanisms of the behavior setting								Limits of the territory		Spatial-temporal boundaries									
	Child	Young	Middle-aged	Old	Woman	Man	Necessary	Optional	Social	Individual	Collective	Long-term	Short-term	Low	Moderate	High	Morning	Noon	Afternoon	Night	Shopping	Pilgrimage	Motion	Pause	Leisure	Sitting	Watching	Wandering	Religious participation	Dialogue and interaction	Middle area	Facade	Fixed	Dynamic
Ashura																																		
Tuesday																																		
Thursday																																		
Friday																																		
22nd Bahman																																		
Normal behavioral patterns compatible with the setting's role			Walking for pilgrimage, emotional reactions to watching the holy shrine (pause, saying dhikr, respecting the shrine), sitting to rest, reading the newspaper, watching the showcase of business activities, group stopping and chatting, participating in religious events, movement of mourning groups for pilgrimage, stopping and watching mourning processions, shrine background photography, using and waiting for electric car and wheelchair for elderly pilgrimage, lighting candles on special days such as Ashura sunset, children playing, personal privacy, and watching the dome and the court of the shrine, short conversations, higher attention of women to hijab																															
Abnormal behavioral patterns incompatible with the setting's role			Smoking, loud verbal interactions at group stops of teenagers and young adults, motorcycle traffic in the field, physical contact (pushing) with others due to overcrowding on certain days, Blocking the way, and pilgrims sitting in the green space of the square, begging																															
Enghelab pedestrian walkway: A Behavioral setting with a predominant function of the course of pilgrimage to the holy shrine, a place for religious occasions, eating, drinking, and shopping																																		
A sequence of behavioral perceptions	Age group		Gender		Current activities in the setting		Behavi or type		Term		Self-regulation		Periods		Mechanisms of the behavior setting								Limits of the territory		Spatial-temporal boundaries									
	Child	Young	Middle-aged	Old	Woman	Man	Necessary	Optional	Social	Individual	Collective	Long-term	Short-term	Low	Moderate	High	Morning	Noon	Afternoons	Night	Shopping	Pilgrimage	Motion	Pause	Leisure	Sitting	Watching	Wandering	Religious participation	Dialogue and interaction	Middle area	Facade	Fixed	Dynamic
Ashura																																		
Tuesday																																		
Thursday																																		
Friday																																		


the option over the others. Fig. 6 reveals the various functions emerging from behavioral perceptions in the surrounding behavior settings of the holy shrine.

Various functions of the behavior settings surrounding Hazrat Masoumeh's (PBUH) holy shrine According to the obtained behavioral

[illegible]

of categories. These categories provide pilgrims' and neighbors' standing patterns of behavior. Fig (6) displays the different functions of the

Rest of Fig 5.

	Child	Young	Middle-	Old	Woman	Man	Necessary	Optional	Social	Individual	Collective	Long-term	Short-term	Low	Moderate	High	Morning	Noon	Afternoons	Night	Shopping	Pilgrimage	Motion	Pause	Leisure	Sitting	Watching	Wandering	Religious	Dialogue	Middle area	Facade	Fixed	Dynamic			
Ashura		⊗	⊗			⊗			⊗		⊗						⊗		⊗			⊗	⊗				⊗						⊗				
Tuesday		⊗	⊗																																		
Thursday		⊗	⊗																		⊗	⊗															
Friday		⊗	⊗																		⊗	⊗															
22nd Bahman		⊗				⊗			⊗								⊗					⊗	⊗										⊗				
Normal behavioral patterns matching the setting's role					Walking for pilgrimage to the shrine, eating and drinking, watching business activities, group pauses and chatting, participation in social and religious ceremonies, movement of mourning processions for pilgrimage																																
Abnormal behavioral patterns incompatible with the setting's role					Smoking, loud verbal interactions, motorcycle traffic, blocking the way, physical contact (pushing) with others due to overcrowding on certain days, roadblock by motorcycle park and pilgrims passing through the special taxi line on the Eram axis, fast and hurried passage while crossing the equestrian intersections																																

surrounding behavior settings of the holy shrine. The Eram pedestrian walkway and the Imam Khomeini Square have a greater variety of behavior settings by providing a wide range of functions.

• Statistical test

- Sample size and reliability of the measurement tool

The sample size was estimated to be 172 according to Cochran's formula. The sample group was randomly selected from the pilgrims in a survey plot. Cronbach's alpha was used to measure the reliability of the researcher-made scale. It examines the internal consistency of the items. The obtained Cronbach's alpha for the two indicators of social interaction and self-regulation was calculated to be 0.742. Moreover, its value for all items was estimated above 0.7, indicating the reliability of the scale.

- The normality of the data and the sign test

Shapiro-Wilk and Kolmogorov-Smirnov normality tests were employed to investigate the normality of the data. Table 3 presents the significance level of each item in the aforementioned tests. According to the table, in both tests, the 'sig' value is less than 0.05. Consequently, it can be concluded that the distribution of the data is abnormal, and it is required to apply non-parametric tests. For this purpose, the sign test was used in item analysis. A criterion (here, median, i.e., the value of 3) was used in this test to compare the results of the sample group to examine the items. Considering the values of the test for all items and the significance level (sig),

which is less than 0.05, the significance of all items is confirmed except for the item of the "amount of willingness to participate in social gatherings and religious occasions around Shrine", whose results can be analyzed in the sample group), and there are significant differences between the opinions of the sample group and the mark criterion for all items tested in the behavior settings of the holy shrine. Therefore, the results of the sample group can be generalized to the population. Table 4 shows the statistical analysis of the items studied in the sample group.

Analysis of the results of observing the ecological structures of behavior settings

The analysis of the results of observing the ecological structures of behavior settings surrounding the holy shrine of Hazrat Masoumeh (PBUH) in the framework proposed by Barker is presented below. Table 5 discusses the behavior-social structure of the behavior settings surrounding the holy shrine of Hazrat Masoumeh (PBUH). Table 6 shows the study of physical structure. Table 7 examines the specific period, and Table 8 presents the physical milieu-behavior synomorphy in the study area.

Conclusion

The surrounding fabric of the holy shrine of Hazrat Masoumeh (PBUH), with its numerous religious centers, mosques, Tekyehs, and pedestrianized pilgrimage areas, has a good potential to attract

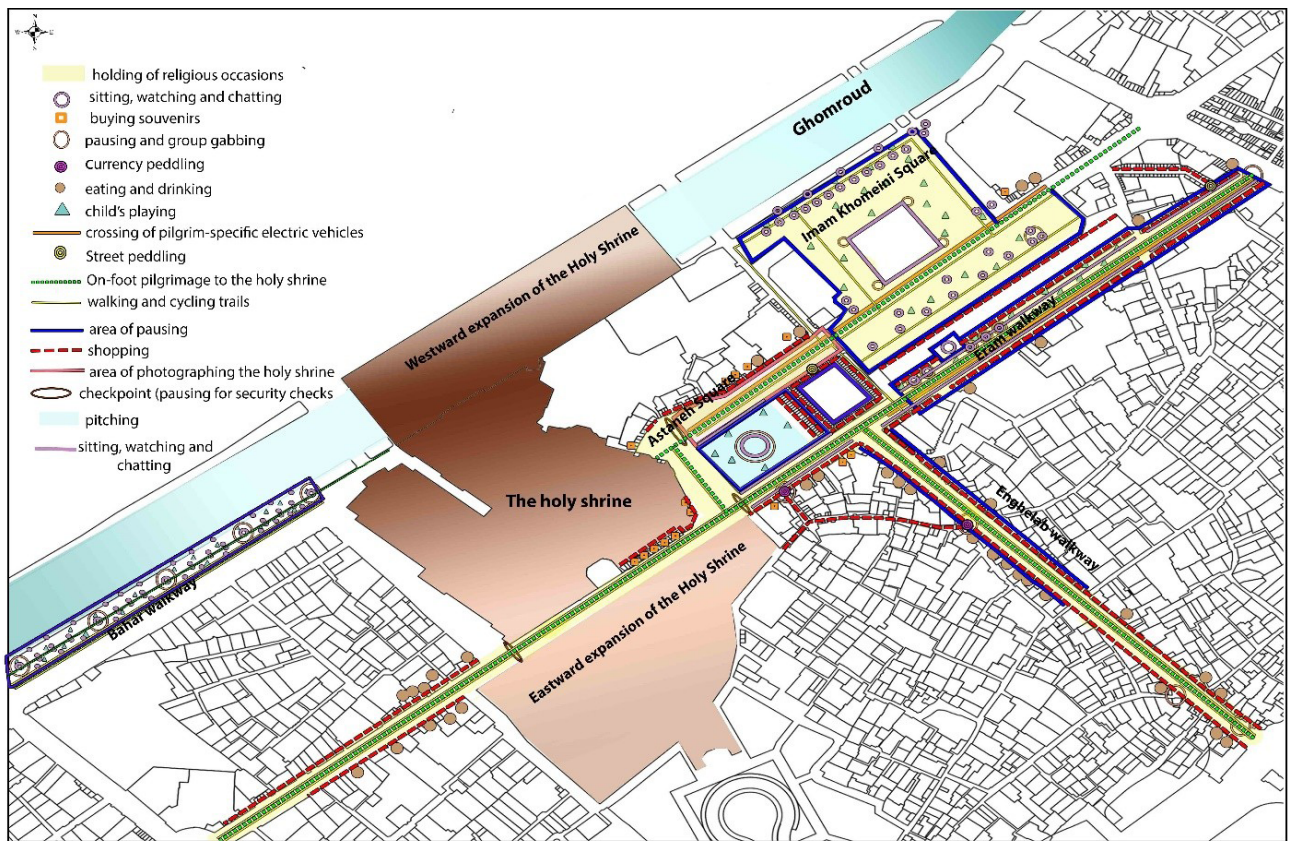


Fig. 6. Various functions of the surrounding behavior settings of Hazrat Masoumeh’s (PBUH) holy shrine. Source: Authors.

Table 3. Shapiro-Wilk and Kolmogorov-Smirnov normality tests of the items. Source: Authors.

Shapiro-Wilk and Kolmogorov-Smirnov normality tests							
Component	Measure	Shapiro-Wilk			Kolmogorov-Smirnov		
		Sig.	df	Statistic	Sig.	df	Statistic
Social participation and interactions	The amount of willingness and possibility of exchanging religious information in the surrounding fabric of the holy shrine	0.00	164	.871	0.00	164	.201
	The amount of willingness to participate in social and religious occasions held around the holy shrine	0.00	164	.899	0.00	164	.163
	The amount of willingness to socialize with others in behavior settings	0.00	164	.906	0.00	164	.171
	The amount of communication with religious missionaries in the territory of the holy shrine	0.00	164	.867	0.00	164	.199
	The amount of desire for family presence in behavior settings for pilgrimage	0.00	164	.768	0.00	164	.280
Self-regulation	The amount of unconscious behavioral limitations in pilgrimage to the holy shrine	0.00	164	.895	0.00	164	.258
	The amount of social surveillance in the case of behaviors unbecoming for the dignity and respect of the holy shrine	0.00	164	.908	0.00	164	.176

religious tourists and domestic and foreign pilgrims with different cultures and subcultures to carry out social and optional activities. As a result, it is considered a ground for the emergence of behaviors compatible and incompatible with the spiritual territory. The present study was conducted with a

mixed research system (quantitative and qualitative) and descriptive-evaluative research method through non-interventional observation, behavioral mapping, tracking, photography, and questionnaire. The difference between the present study and previous ones in the field of religious realms is the use of

Table 4. Analysis of mean, median, mode, and sign test in the sample group. Source: Authors.

Analysis of mean, median, mode, and sign test						
Component	Measure	mean	median	mode	Sign test	
					Value	Sig.
Social participation and interactions	The amount of willingness and possibility of exchanging religious information in the surrounding fabric of the holy shrine	2.40	2.00	1.00	-4.869	0.00
	The amount of willingness to participate in social and religious occasions held around the holy shrine	3.01	3.00	3.00	-.349	.727
	The amount of willingness to socialize with others in behavior settings	2.68	3.00	3.00	-2.762	0.006
	The amount of communication with religious missionaries in the territory of the holy shrine	2.42	2.00	1.00	-2.762	0.006
Self-regulation	The amount of desire for family presence in behavior settings for pilgrimage	4.00	4.00	5.00	-8.192	0.00
	The amount of unconscious behavioral limitations in pilgrimage to the holy shrine	3.31	3.00	3.00	3.874	0.00
	The amount of social surveillance in the case of behaviors unbecoming for the dignity and respect of the holy shrine	3.20	3.00	3.00	-2.383	0.017

Barker's conceptual framework in the study and analysis of behavioral sites around the holy shrine of Hazrat Masoumeh (PBUH). This study aimed to measure the level of behavioral synomorphy around the holy shrine of Hazrat Masoumeh (AS) in relation to the behavioral patterns of pilgrims. The summary of the results obtained in the selected framework and four significant themes "behavior-community structure, body structure, proportional coordination between the two and a specific period" is as follows: The results concluded on the theme of the behavior-social structure of behavior settings indicate that: The variety of behavior settings' programs in this area shows the importance of social and optional religious-ritual activities of pilgrims and neighbors. Investigation of social activities, quality of social interactions, and cooperation in social events prove that this indicator is of moderate importance for pilgrims and users who are more likely to engage in family-type group interactions in the behavior settings of this territory. According to observations, the most dominant individual behavior in this territory is to visit the holy shrine on foot. Also, the main collective behaviors are social participation in religious and ritual events. Individuals using the behavior settings cover all age and gender categories, with the dominance of the young to middle-aged group. However, on certain days, male users dominate these settings. Also, the characteristic

of self-regulation in behavior settings indicates that there is direct control over the behavior of pilgrims by the trustees of the holy shrine. While indirect control over their behaviors to correct abnormal behaviors is sometimes taken by social surveillance of spontaneous groups. However, examining the quality of self-regulation from the point of view of pilgrims confirms that the level of social control and surveillance in the event of abnormal behaviors in the context as well as the amount of unconscious behavioral limitations in pilgrimage, which is an example of synomorphy with the function of religious behavior settings, are evaluated to be moderate. Considering the different functions of behavior settings and their various audiences, the observations of users' behavioral mechanisms indicate 14 standing patterns of abnormal behaviors violating the role of the surrounding behavior settings of the holy shrine. Among them, the physical milieu including behavioral patterns in the areas of pilgrimage provides a noticeable direction in inducing the normal and abnormal behaviors of pilgrims.

The results concluded on the theme of the physical structure of behavior settings indicate that: The physical structure of these settings can be defined principally with the pause-motion nature by their facades and middle areas. The presence of urban furniture on the Eram and Bahar pedestrian

Table 5. Analysis of the results of observing behavior-social structures of the behavior settings surrounding the holy shrine of Hazrat Masoumeh (PBUH). Source: Authors.

Analysis of the results of observing behavior-social structures of the behavior settings surrounding the holy shrine of Hazrat Masoumeh		
The behavior-social structure	Action patterns	<p>The major necessary activities within behavior settings: purchasing essentials, going to administrative, educational, and cultural centers (central libraries, seminaries, etc.), going to workplaces, commuting of the trustees of the support complexes of the holy shrine and the members of the bazaar, waiting to use public transport to go other places from the city center, and standing in front of red lights at the entrance to the pedestrian walkway.</p> <p>Major optional activities in favorable conditions in the setting: Walking to the holy shrine, walking within the behavior settings to spend leisure time, wandering in commercial and market complexes, sitting and watching current activities, standing, pausing, buying souvenirs, eating and drinking on the pedestrian walkways, watching shop windows, and standing and watching religious ceremonies.</p> <p>Major social activities in this setting: short conversations and pilgrims asking for addresses, group meetings for pilgrimage to the holy shrine (collective pilgrimage and worship), chatting and establishing social interactions in pauses and sitting spaces, participating in religious and political events, and participating in processions to distribute votive on special days.</p> <p>According to the analysis of the questionnaire, the average willingness to participate in social gatherings and religious occasions in the behavior settings of the holy shrine, which is the most important collective behavior appropriate to the function of these territories, was estimated to be 3.01. While the mode was estimated to be 3.00. Therefore, this tendency in pilgrims has a moderate average. Also, the measure of the tendency to establish social interactions with others, with an average of 2.68, has a moderate level among pilgrims. But the average willingness of a family to visit in the behavior settings of the holy shrine is 4.00. While the statistical mode of the sample group is 5.00. This shows the very high desire of pilgrims to attend family for pilgrimage. The comparison of the two mentioned criteria shows that pilgrims are more inclined to activities and group interactions of the family type compared to interactions with strangers in behavior settings. The average willingness and possibility of exchanging religious information in the behavior settings of the holy shrine are 2.40 and its statistical mode is 1.000. Also, the average of communication with religious missionaries in behavior settings is 2.42 and the statistical mode value in the sample group is 1. This indicates the weakness of the two measures mentioned. Whereas, in religious teachings, holy places and their territories are mentioned as social territories of acquiring religious teachings, education, and human construction.</p>
	Behavioral mechanism	<p>Normal behavioral patterns: Walking to pilgrimage to the holy shrine, emotional reactions to seeing the dome and court of the holy shrine (pause, saying dhikr and politeness to the holy shrine), eating and drinking, shopping (supplies and souvenirs), watching the showcase of commercial activities, Short conversations, face-to-face interactions, participation in social and religious occasions, leisurely wandering, moving of mourning processions for pilgrimage to the holy shrine, more attention of women to keep the hijab, sitting to relax and watch group and individual activities, children's games, group pauses and chatting personal privacy and watching the dome and court of the holy shrine, setting up processions to distribute offerings on special days, lighting candles on pedestrian walkways on special days such as Ashura sunset</p> <p>Abnormal behavioral patterns: Smoking, loud verbal interactions at teen and young group stops, focus on shopping and spending more time at food stations, currency trading, stopping and gathering for street currency trading, begging and peddling (both cases are seen occasionally and out of sight of municipal observers), Motorcycle crossing the pedestrian walkway railings and its traffic in pedestrian areas, jumping over the pedestrian walkway entrance barrier, lifting carriages and wheelchairs at the pedestrian walkway entry points, distributing goods for sale in parts of pedestrian walkways, roadblock by motorcycle park and pilgrims passing through the special taxi line on the Eram axis (between Fatemi intersection and the Shabestan), congregation in front of a special activity and use, fast and hurried passage while crossing the vehicle intersections at the entrances to the pedestrian walkways, and the pilgrims sitting in the green space of Astaneh Square and the entrance of Khan Passage on Enghelab pedestrian walkway.</p>
	Behavioral roles	Different roles that behavior settings give to users: the role of passers-by in passing through the city center, pilgrims to the holy shrine, mourners on special occasions, owners, neighbors, businessmen, market syndicates, religious trustees of the shrine.
	Self-regulation	<p>Direct control of pilgrims' behaviors is performed by the trustees of the holy shrine as a compulsion at checkpoints on pedestrian walkways and the entrance of the holy shrine complex according to the rules of this setting.</p> <p>Indirect control for correcting maladaptive behaviors in the event of norm-breaking behaviors (resistance and prevention of inconsistent behaviors) is performed with the social surveillance of spontaneous groups, warnings, and restrictions, especially on special religious days.</p> <p>The analysis of the self-regulation index shows that from the pilgrims' point of view, in the behavior settings, the mean and mode of social control and surveillance in case of neighbors and special observers' behaviors unbecoming for the holy shrine was estimated to be 3.00. Therefore, this measure is at a moderate level from the pilgrims' perspective. Also, regarding unconscious behavioral limitations through pilgrimage, which is an example of synomorphy with the function of religious behavior settings and territorial behaviors in the territory of the holy shrine, the mean and mode were estimated to be 3.31 and 3.00, respectively. As a result, this measure is also at a moderate level.</p>
	Behavior type	<p>According to observations, the most prevalent individual behavior in the behavior settings of this territory is solo walking to the holy shrine, which is emphasized in religious references to prepare the pilgrims mentally for the pilgrimage.</p> <p>Collective behaviors in behavior settings are achieved through social interactions and social participation. The tendency to establish social interactions in the sacred place and its territory is a necessary principle of territoriality in</p>

Rest of Table 5.

Analysis of the results of observing behavior-social structures of the behavior settings surrounding the holy shrine of Hazrat Masoumeh	
	religious settings. The short and long verbal and non-verbal social interactions of the pilgrims and participation in ritual-religious and social rites are an example of the collective behaviors that make up these behavior settings. According to observations, the Eram pedestrian walkway, the Imam Khomeini Square, and the Astana Square have more opportunities due to better setting mechanisms, including furniture and space form, and collective behaviors related to optional and social activities.
The setting's programs	The specific programs according to which the elements of the settings operate in different functions are as follows: pilgrimage, pause, walking, leisure, sitting, watching, talking, shopping, playing, eating and drinking, and religious events.
Age group	The users of behavior settings are of all age groups. But in general, young and middle-aged people are the dominant group in these settings.
Gender	The presence of men and women can be seen in all behavior settings of the holy shrine. However, on certain special religious and political days - such as Ashura or 22th Bahman - men have more religious and political participation.

Table 6. Analysis of the results of observing physical structures in behavior settings around the holy shrine of Hazrat Masoumeh (PBUH). Source: Authors.

Analysis of the results of observing physical structures in behavior settings around the holy shrine of Hazrat Masoumeh		
	Spatial and local boundaries	Configuration of the setting
		The constituent space of behavior settings can be defined with the pause-motion nature within their body and middle areas. The presence of urban furniture on Eram and Bahar pedestrian walkways and Imam Khomeini and Astaneh squares provide the required ground for pause, sitting, watching, and social interactions. In behavior settings with a pause nature, including the Imam Khomeini Square, the middle area is more important; In behavior settings with a motion nature, including Eram pedestrian walkway, and Enghelab and Astaneh squares, in addition to the middle area, which is the course of pilgrimage to the holy shrine, facades play an essential role too. Bahar pedestrian walkway, as a greenway at the edge of Ghomroud, has no facades and its middle area is important.
Physical structure	Furniture	The presence of urban furniture on Eram and Bahar pedestrian walkways and Imam Khomeini and Astaneh squares provide the required ground for pause, sitting, watching, and social interactions. During this research, the necessary furniture for the mentioned activities has not been provided in the second part of Eram pedestrian walkway and Enghelab pedestrian walkway.
	Physiognomic perception	The objective and the subjective perceptual system require detailed investigation through a separate study. But about the capability of the facades in these settings, it can be said that, in general, the facades are not defined in accordance with the principles of design and visual-perceptual characteristics in the territory of sacred places.
	Sensory stimuli	The Sensescape that can be received in this pilgrimage territory has not been defined following the rites of pilgrimage and does not affect the five senses of the pilgrims. The predominance of noise and anthrophonic sounds overshadows the identity of the religious and cultural sound marks of the soundscape of this territory. Also, geophonic and biophonic sounds compatible with the context of pilgrimage areas, have a small share of pleasant sounds. The Smellscape has a small share in recognition of the pilgrimage areas in this territory by inhaling pleasant odors suitable for sacred places - including the smell of rose water, Esfand (except for special occasions), incense, perfume, flowers, fragrant materials (such as soil). Due to the multiplicity of uses and activities responsive to the sense of taste and the matter of pedestrianism in the main areas of pilgrimage to the holy shrine, the potential taste-scape is plentifully observed with the offering of souvenirs (of the edible type) and the presence of restaurants, delicatessens and taste marks. Contact with nature and connection with it in a way that pilgrims' tactile sense is excited is observed in Eram and Bahar pedestrian walkways, with a small share.

walkways and Imam Khomeini and Astaneh squares provide the required ground for pause, sitting, watching, and social interactions. In behavior settings with a pause nature, including Imam Khomeini Square, the middle area is more important; In behavior settings with a motion nature, including Eram pedestrian walkway, and Enghelab and Astaneh squares, in addition to the middle area, which is the course of pilgrimage to the holy

shrine, facades also play an essential role. However, regarding the capability of facades, according to the objective and subjective perception of the physical structure of behavior settings, it can be generally said that the facades of the pilgrimage areas do not follow a developed pattern conforming to the principles for designing the territory of sacred places. Confused and worn-out facades and the disuse of symbolic and Islamic visual patterns

Table 7. Analysis of the results of observing temporal locus structures in the surrounding behavior settings of the holy shrine of Hazrat Masoumeh (PBUH). Source: Authors.

Analysis of the results of observing temporal locus structures in the surrounding behavior settings of the holy shrine of Hazrat Masoumeh		
Special periods	Temporal locus and Serial occurrence	Behavior settings in the territory of the holy shrine of Hazrat Masoumeh (PBUH) take different roles on specific temporal loci and in serial occurrences. Most of the current programs in these settings are in line with the religious role of this territory. Behavioral perceptions obtained in the behavioral settings of this territory indicate the repetition of behavioral patterns in a specific daily program (during religious hours of Dhuhr Adhan and Maghrib Adhan) for pilgrimage to the holy shrine and religious places of this territory for daily congregational prayers. The most important period in the daily events includes sunsets and pilgrimage to perform Maghrib prayers, which is more welcomed. Praying on special days of the week, including Tuesday evening, Thursday evening, and Friday morning is a recurring weekly program. In the mentioned program, Tuesday evening (due to the presence of more pilgrims on the special day of pilgrimage to the Holy Mosque of Jamkaran) and Thursday evening are more welcomed by pilgrims. The first day of each lunar month is the recurring monthly program and Tasu'a, Ashura, Arba'een, Ramadan, 22th Bahman, etc., are examples of recurring annual religious and political periods in this pilgrimage setting. Most behavioral patterns under the mentioned time cycles are followed by holding and performing religious and social occasions. The greater public attendance is observed in religious places during the mentioned periods. The main observations show the behavioral patterns of walking to the religious places of this territory to participate in the mentioned religious rites. It is noteworthy that the most significant annual event can be considered the religious event of Ashura. This event is more enthusiastically held in Qom city than in other cities, due to the multiplicity of religious centers, mosques, Tekyes, and the diversity of groups, cultures, minorities, and ethnicities, which have their own special styles of mourning. Other functions of behavior settings are affected by the purpose and program (especially on annual occasions) and become closed or semi-closed.
	Type of period	<p>Permanent long-term: The most important long-term function of the behavior settings of the holy shrine is a pilgrimage to the holy shrine. Although the settings of shopping, leisure, pause, etc., are among the permanent long-term ones, they become semi-closed or closed under the influence of the holding of religious and social occasions on special occasions, and serve to establish these events as best they can.</p> <p>Non-permanent short-term: One of the most important short-term functions of behavior settings in the mentioned territory is to hold social and religious events, such as Muharram mourning ceremonies, religious holidays, the anniversary of the Islamic Revolution (22th Bahman), etc., which begin and end at a certain time.</p>

Table 8. Analysis of the results of observation of milieu-behavior synomorphy in behavior settings around the holy shrine of Hazrat Masoumeh (PBUH). Source: Authors.

Analysis of the results of observation of milieu-behavior synomorphy in behavior settings around the holy shrine of Hazrat Masoumeh		
Synomorphy of fabric and behavior	Structural	The body is synomorph with standing patterns of behaviors on certain days in the behavior settings of the territory - the Eram pedestrian walkway, the Enghelab pedestrian walkway, the Imam Khomeini Square, and the Astana Square - which is determined by providing a space for pause and movement. By closing the facades on these days, a better synomorphy between the milieu and behaviors is provided for holding religious occasions and the movement of mourning groups. On other days, the lack of such a synonymy in behavior settings causes abnormal behavioral patterns inconsistent with the described program of the behavior settings.
	Dynamic	Interdependence between the synomorphy patterns in behavior settings: On certain days, the mourning processions move to pilgrimage the holy shrine. In fact, the two synomorphies of pilgrimage to the holy shrine and the holding of religious rites strengthen each other. In the Eram pedestrian walkway, synomorphy patterns are interdependent in the functions of sitting, pausing, eating, drinking, and chatting. Also, in Imam Khomeini Square, the synomorphy patterns in the functions of sitting and pausing, have a certain amount of dependence on chatting and interaction. In Astaneh Square with the two dominant functions of souvenir shopping and pilgrimage to the holy shrine, the interdependence between the synomorphy patterns is poor. In the Enghelab pedestrian walkway with the two dominant functions of stopping at delicatessens and pilgrimage to the holy shrine, no interdependence is observed.

display a landscape alien to the visual values of the context. Also, the sensescap that can be received in this pilgrimage territory has not been defined following the rites of pilgrimage and does not affect the five senses of the pilgrims. The predominance of noise and anthrophonic sounds overshadows the identity of the religious and cultural sound marks of the soundscape of this territory. Moreover, stimulation and excitement of

other senses also do not significantly influence the statements governing the pilgrimage of pilgrims. The results concluded on the theme of the period and duration in the behavior settings indicate that: Standing patterns of behaviors in different serial occurrences, including daily religious hours, weekly, monthly, and yearly ritual times, show attention to the religious-ritual time frames of pilgrims and neighbors. The most significant long-term temporal

function of behavior settings is the pilgrimage to the holy shrine, while the essential short-term temporal functions of behavior settings are to set up social and religious events in the territory study, to repeat patterns of behavior in daily periods (religious hours of Dhuhr Adhan and Maghrib Adhan), and to pilgrimage to the holy shrine and religious places of this territory to hold daily congregational prayers. The recurring weekly program includes prayers on Tuesday evenings, Thursday evenings, and Friday mornings. The current monthly program includes the first day of each lunar month. And the annual program includes religious and social events such as Tasu'a, Ashura, Arba'een, rituals of Ramadan, the anniversary of the Islamic Revolution (22th Bahman), and so on. Examples of periods in this pilgrimage territory show the main patterns of behavior following the mentioned time cycles to hold and perform religious and social rituals with more visitors to the religious places in the territory. The most important time event in the annual cycle can be the religious event of Tasu'a and Ashura. These events are significant due to the diversity of groups, cultures, minorities, and ethnicities in the city of Qom and their own special styles of mourning.

The results concluded on the theme of the physical milieu-behavior synomorphy in the behavior settings indicate that:

The policy of pedestrianization of pilgrimage areas, the construction of Imam Khomeini Square, and the holy shrine development plans in recent years have enhanced the behavior-physical milieu synomorphy by holding religious rituals as the most important standing pattern of behavior in religious settings. The Eram and Enghelab pedestrian walkways, and Imam Khomeini and Astaneh squares provide a better behavior-physical milieu synomorphy to hold religious occasions and facilitate the movement of mourning groups by providing pause-motion spaces and by closing the facades at appropriate times.

However, the physical structure's poor

accountability and flexibility against some of the standing behaviors on normal times and occasions caused some problems including the absence of a pre-designed ground for holding outposts to distribute votive, lack of furniture to stop and pause for standing behaviors (such as mourning, family sitting, personalization of territory, and seclusion) and lack of defined sensecap in compliance with pilgrimage customs. It indicates that the physical structure of the above behavior settings does not have sufficient synomorphy with a set of primary and secondary needs and a group of activities and behaviors of pilgrims.

Although in the current situation, the aforementioned activities are carried out in pedestrianized areas, they cause a barrier in the walkways for mourners and crowds.

Consequently, it is essential to redefine these behavior settings and pay attention to the principle of milieu-behavior synomorphy following the customs and culture of pilgrimage to solve the behavioral problems and enhance pilgrims' self-regulation.

Creating incentive ground for the manifestation of social and optional activities of pilgrims by taking measures and by observing the following can be helpful:

- Flexibility in redesigning the facades of behavior settings by creating suitable setbacks for the establishment of outposts on special days;
- Creating suitable setbacks for standing patterns of behavior on certain days (such as pausing and watching mourning) by creating adaptive spaces such as porches and stairs in the facades of behavior settings;
- Providing an all-inclusive behavior setting for the presence of all age groups, especially elderly pilgrims, by setting up wheelchair rental stations and installing ramps;
- Providing opportunities for individual and group stopping by strengthening the form and facilities of the facades and the middle area of the pilgrimage walkways;

-Strengthening behavior settings by organizing and redesigning the facade per the objective and subjective value principles in the design of the territory of holy places;

-Physical modification to avoid standing patterns of abnormal behavior such as lifting the carriages while crossing the barriers in the Eram pedestrian walkway, better social surveillance to deal with abnormal behaviors such as currency trading and begging;

-Organizing and managing peddlers in the predicted areas in the environment of behavior settings, etc.

The above-mentioned cases can promote better coordination of body-behavior structures in behavioral settings around the holy shrine.

The authors state that there was no conflict of interest for them in conducting this study.

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