JOURNAL of DESIGN THINKING

A Design-Oriented Model of Permanent Residents' Perceptions of Built-Environmental Impacts of Second-Home Development in Rural Contexts

***Marziyeh Mohebbi*[1], *Parisa Hashempour*[2*], *Farzin Haghparast*[3]**

[1] Faculty of Architecture and Urban Planning, Tabriz University of Islamic Arts, Tabriz, Iran. Email: m.mohebbi@tabriziau.ac.ir
[2] Faculty of Architecture and Urban Planning, Tabriz University of Islamic Arts, Tabriz, Iran. Email: p.hashempour@tabriziau.ac.ir
[3] Faculty of Architecture and Urban Planning, Tabriz University of Islamic Arts, Tabriz, Iran. Email: f.haghparast@tabriziau.ac.ir

[*]**Corresponding author:** Parisa Hashempour

DOI: 10.22059/jdt.2026.409456.1178

Received: *5 January 2026,* ***Revised:*** *24 January 2026,* ***Accepted:*** *24 January 2026,* ***Available Online*** *from 24 Jnauary 2026.*

Abstract

The rapid growth of tourism-related second homes is a key driver of physical and environmental change in rural areas, reshaping settlements and the spatial experiences of permanent residents. While previous studies focus on land-use and socio-economic consequences, design-oriented implications across spatial scales have received limited attention. This gap hinders a nuanced understanding of how such developments are perceived by host communities, which is critical for mitigating visual disruption and fostering contextual design. Using a perception-based approach, this study develops a conceptual model to examine how permanent residents evaluate the physical and environmental impacts of second-home development. The model integrates four design-related components: formal aesthetics, symbolic aesthetics, landscape transformations at the macro scale, and physical changes in rural housing at the micro scale. Employing a mixed-methods approach, data were collected via a researcher-designed questionnaire in the villages of Heravi and Beyraq in Tabriz County. The proposed model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results indicate that perceived rural landscape-scale changes most strongly shape overall evaluations, while micro-scale house alterations show no significant direct effect. Formal aesthetic qualities significantly affect perceptions, unlike symbolic aesthetics. Residents' responses are driven less by isolated architectural features than by broader changes in visual coherence, scale, and landscape continuity. This study contributes by reframing second-home development as a design-led problem and proposing a multi-scalar model where rural landscape structure centrally shapes environmental perceptions.

Keywords

Tourism Second Homes, Rural Settlements, Heravi and Beyraq Villages, Physical-Environmental Impacts, Environmental Perception.

.

Introduction

Indigenous rural housing has historically evolved through the use of traditional spatial patterns, local materials, and vernacular construction knowledge, knowledge that has gradually developed from the lived experiences of local communities and through continuous interaction with climatic conditions, topography, and livelihood practices. Beyond responding to environmental requirements, these physical patterns embody deep-rooted cultural and social dimensions, including extended family structures, neighborhood relations, local participation, and everyday living practices. From this perspective, rural architecture constitutes an integral component of the village's socio-spatial and cultural system, shaping the physical coherence, identity, and landscape character of rural settlements.

However, the growing influence of non-indigenous and urban-oriented architectural models-often justified by discourses of modernization and improved housing quality-can, in practice, destabilize visual balance, spatial coherence, and the identity of the rural built environment. Such disruptions extend beyond the physical form of buildings and may affect deeper layers of spatial experience, dwelling patterns, and even residents' mental and emotional orientations toward home and place.

In recent decades, the rapid expansion of tourism-related second homes in rural areas of Iran has become a significant driver of physical and spatial transformation. The influx of non-local investment and increasing demand for temporary residence have substantially altered village landscapes, leading to higher building densities, modified spatial patterns, and growing visual incongruities within rural settings. These changes not only produce tangible physical impacts but also shape the lived experiences of permanent residents, particularly where the intensity of new interventions conflicts with indigenous architectural values and visual identities. Consequently, understanding residents' perceptions emerges as a necessary complement to purely physical analyses, as discrepancies between physical-spatial change and local interpretation may result in fundamentally different outcomes.

Rural settlements surrounding the metropolitan area of Tabriz, Similar to many Iranian cities, have been particularly affected by accelerated villa development over the past two decades. The juxtaposition of indigenous village fabrics with newly developed zones of temporary accommodation has generated a pronounced visual and spatial contrast. Villas characterized by urban styles, incongruent materials, and unfamiliar scales have increasingly challenged the visual structure and landscape identity of villages in the region. Recent studies in rural landscape research emphasize that pressures arising from emerging developments, including second-home settlements, can disrupt the continuity of cultural landscape patterns and transform both visual and perceptual qualities of the environment (Antrop & Van Eetvelde, 2017; Selman, 2012).

Importantly, the impacts of second-home development cannot be fully understood through objective physical indicators alone. Research in environmental perception demonstrates that lived experience, environmental familiarity, and place memory form cognitive frameworks through which individuals interpret and evaluate visual and physical changes in their surroundings (Kaplan & Kaplan, 1989; Nasar, 1994). These perceptual frameworks can mediate residents' responses to new interventions and lead to divergent evaluations of transformed environments (Hunziker et al., 2007). Therefore, second-home development must be examined not only in terms of its physical consequences but also through the perceptual, aesthetic, and value-laden interpretations of permanent residents.

Accordingly, the central research question of this study is formulated as follows:

How does tourism-related second-home development influence permanent residents' perceptions of changes in the built environment at both the housing and rural landscape scales, and through which physical and aesthetic components do this influence occur?

Adopting a design-oriented approach and employing Partial Least Squares Structural Equation Modeling (PLS-SEM), this study seeks to elucidate the impacts of tourism-related second-home development on the

spatial and aesthetic experiences of permanent residents in the villages of Heravi and Beyraq, located in Tabriz County. The proposed model simultaneously examines residents' perceptions across four key constructs: formal aesthetics, understood as aesthetic preferences shaped by new tourism-related constructions; symbolic aesthetics, referring to the perceived meanings and identity-related interpretations of emerging elements; the rural landscape, as perceptions of broader environmental transformation; and the physical structure of rural housing, reflecting tendencies toward imitation of tourism villas in indigenous housing patterns. The paper first reviews relevant theoretical foundations and prior research on environmental perception, landscape preference, and the physical-spatial impacts of second-home development, followed by the presentation of the research methodology and conceptual model. Finally, empirical findings are discussed from a design perspective, and implications for context-sensitive rural development are proposed.

Research Background

Recent studies in landscape research and environmental experience demonstrate that residents' perceptions of their surroundings are highly sensitive to visual change, functional transformation, and patterns of spatial use. Research on rural landscapes emphasizes that alterations in building patterns, everyday rhythms of life, and spatial structures can significantly influence the quality of environmental experience, as well as residents' perceptions of coherence, legibility, and overall environmental meaning (Ode Sang et al., 2008; Tveit et al., 2006; Wartmann et al., 2021).

Within rural contexts, the introduction of emerging structures, particularly second homes-represents the emergence of new landscape cues that have the potential to redefine the relationship between physical form, cultural practices, and indigenous ways of living. A review of recent literature on the impacts of second-home development in rural environments indicates that such construction is commonly associated with increased stylistic diversity, unfamiliar building scales, and a stronger orientation toward consumption-driven values. These changes often contribute to reduced visual coherence and discontinuities within traditional settlement fabrics (Müller, 2008; Overvåg, 2011; Pitkänen et al., 2020). In many national contexts, these physical transformations have been identified as recurring consequences of private villa development and second-home expansion.

At the same time, environmental perception in rural areas is closely linked to residents' sense of continuity and place identity. Studies addressing rural identity and place experience suggest that physical changes misaligned with the historical and cultural logic of a place can lead to a reconfiguration of meaning and lived experience among indigenous residents (Lewicka, 2008; Moore, 2021; Lynnebakke & Aasland, 2022). Under such conditions, second-home development may generate heterogeneous forms of environmental perception, distinguishing between a "lived landscape" and a "consumed landscape." Understanding these dynamics is fundamental for interpreting the physical–environmental consequences of tourism development in rural contexts.

Based on this body of evidence, a perceptual gap between permanent residents and seasonal homeowners appears likely, as these groups engage with space through fundamentally different experiential logics. Despite this, the environmental perceptions of permanent residents in villages under pressure from second-home development have not been systematically examined in the existing literature. While numerous studies have addressed the economic, social, and physical impacts of second homes, the environmental perception of physical-environmental change from the perspective of host rural communities has rarely been conceptualized as an independent and structured analytical construct. This gap forms the central point of departure for the present study.

Theoretical Framework

1. *Theoretical Approaches to Explaining the Physical Impacts of Second-Home Development within Environmental Perception Theories*

Environmental perception and how individuals evaluate landscapes constitute a fundamental area of inquiry within environment–behavior studies. Within the classical framework, Kaplan and Kaplan argue that human environmental preferences are structured around four core perceptual dimensions: coherence, complexity, legibility, and mystery (Kaplan & Kaplan, 1989). These dimensions shape how rural and urban environments are judged in terms of form, spatial organization, and visual appeal. From a complementary perspective, Gibson's ecological approach introduces the concept of affordances, emphasizing that individuals experience environments through the opportunities, action potentials, and perceptible qualities they offer (Gibson, 2014). This perspective is particularly relevant for understanding the perceptual consequences of physical development processes, such as second-home construction.

Building on these approaches, landscape preference theory suggests that visual preferences emerge from the interaction between formal attributes, spatial structure, and culturally embedded cues. Classical findings indicate that objective landscape characteristics-including spatial organization, structural form, façade patterns, and degrees of visual richness-play a decisive role in shaping aesthetic judgments and can directly influence the quality of environmental experience (Herzog & Smith, 1988; Nasar, 1994). More recent literature, however, demonstrates that aesthetic evaluation extends beyond purely formal foundations and is also shaped by symbolic, decorative, and culturally coded elements. These elements contribute to the production of meaning, memory, and visual identity within environments (Ning et al., 2024; Sáenz de Tejada et al., 2021). Together, formal and symbolic dimensions simultaneously guide perceptual preferences and construct broader understandings of landscape quality.

Within this theoretical context, any form of physical intervention-from incremental changes in village fabric to new constructions such as second homes-has the potential to transform both the objective attributes of the landscape (including visual order, scale, proportion, and spatial legibility) and its symbolic and meaning-laden layers (such as identity, authenticity, and cultural associations). These transformations are observable not only at the macro scale of village form and landscape character, but also at the micro scale of rural housing, where formal elements, material choices, and relationships with the natural environment play a critical role in perception and livability. Accordingly, both classical and contemporary evidence indicate that environmental perception emerges from the dynamic interaction between physical qualities and mental-cultural signifiers. This interaction provides the necessary theoretical foundation for identifying the core constructs examined in the present study.

2. *Formal and Symbolic Aesthetics*

Contemporary literature in environmental aesthetics and landscape evaluation indicates that the aesthetic experience of architectural and rural spaces emerges from the interaction between perceptual-visual attributes, symbolic and meaning-laden qualities of space, and users lived experiences. Within recent landscape evaluation frameworks, two key components-formal aesthetics and associative or symbolic aesthetics-have been identified as core cognitive dimensions of aesthetic perception (Daniel, 2001).

Formal aesthetics primarily refers to attributes such as spatial order, proportion, rhythm, visual texture, legibility, and the coherence of physical elements. Empirical studies demonstrate that these attributes play a direct role in shaping residents' visual preferences toward rural landscapes, influencing perceived environmental quality and levels of acceptance of physical change (Ode Sang et al., 2008). In rural environments, alterations in scale, architectural styles, and physical rhythms-such as those associated with second-home construction-can disrupt visual coherence and perceptual unity, leading to the emergence of new landscape codes that may not align with indigenous spatial patterns.

By contrast, symbolic or associative aesthetics emphasizes meaning, identity, and the cultural significance embedded in environments. Empirical evidence suggests that indigenous natural elements, traditional materials, familiar color palettes, and rooted architectural patterns significantly reinforce senses of identity, attachment, and cultural value (Gobster et al., 2007; Hernández et al., 2007). The introduction of new architectural models, particularly when detached from local cultural and historical contexts, can weaken the symbolic coherence of place and reshape residents' perceptions of authenticity and environmental identity (Relph, 1976; Smith, 2006; Tuan, 1977).

Recent research increasingly emphasizes the integration of formal and symbolic dimensions in evaluating public responses to physical change. Importantly, studies indicate that aesthetic preferences are not determined solely by visual characteristics; lived experience, collective memory, and long-term familiarity with a landscape play a critical moderating role in how sudden transformations are perceived and evaluated (Menatti et al., 2019; Scannell & Gifford, 2010; Zajonc, 1968). These insights are particularly relevant for understanding residents' responses to second-home development, as changes in scale, form, materials, and spatial patterns may simultaneously influence formal judgments and perceived meanings and identities.

3. *Impacts of Tourism-Related Second-Home Development at the Macro Scale*

In rural landscape literature, landscape is conceptualized as a dynamic outcome of multi-layered interactions between village morphology, socio-economic functions, environmental systems, and indigenous culture. This perspective, articulated in foundational landscape studies, emphasizes that coherence and legibility are not solely products of physical elements, but also of historically and culturally grounded relationships between settlements and their surrounding natural environments (Antrop, 2005; Olwig, 2019). From this viewpoint, new physical interventions-particularly those diverging from indigenous patterns-can disrupt these structural relationships and lead to a reconfiguration of the village's visual and spatial organization.

According to theoretical frameworks in landscape studies, such reductions in coherence and legibility may intensify processes of landscape fragmentation, whereby the traditional spatial structure of rural settlements becomes disrupted through the introduction of incompatible physical elements (Antrop, 2005). Within rural planning research, studies further indicate that second-home expansion is accompanied not only by physical change but also by a functional shift, in which land use transitions from productive or indigenous residential functions toward consumption-oriented and recreational uses (Hall & Müller, 2004). This process is widely recognized as a structural outcome of residence-based tourism in rural regions.

Functional shifts typically entail physical transformations aligned with new tourism-related demands, resulting in changes to building patterns, architectural scale, visual diversity, and stylistic expression. As a consequence, the overall visual structure of villages and residents' perceptions of landscape quality may be significantly altered. Integrating insights from landscape studies and second-home research, it can be argued that tourism villa development affects not only the physical and functional structure of rural settlements, but also their perceptual dimensions. Consistent with environmental perception theories (Kaplan & Kaplan, 1989), visual coherence, familiarity, and continuity play a crucial role in shaping residents lived experiences of place. Accordingly, changes in construction patterns are likely to influence villagers' perceptions of familiar landscapes, senses of place identity, and visual stability. From this perspective, second-home development is expected to play a significant role both in shaping rural landscapes and in influencing residents' perceptions of landscape change.

4. *Impacts of Second-Home Development on Rural Housing (Micro Scale)*

At the micro scale, the rural house represents not merely a physical unit but an integral component of the village's cultural, economic, and environmental system. Within rural architectural literature, physical elements of the house-such as indigenous materials, openings, semi-open spaces, courtyards, and modes of connection with nature-are widely recognized as primary carriers of architectural identity and ecological dwelling logic (Oliver, 2006).

The introduction of new construction patterns, particularly tourism villas and second homes, has the potential to disrupt the physical-ecological logic underlying rural architecture. Vernacular architecture literature emphasizes that rural housing traditionally evolves through residents' needs, the use of local materials, human-scaled forms, direct engagement with nature, and climate-responsive spatial organization-features that become embedded over time as part of the architectural identity and ecological rationale of settlements (Fathy, 1986; Oliver, 2006; Rapoport, 1969). In contrast, emerging constructions within rural contexts-often driven by recreational and secondary residence demands-tend to employ industrial materials, volumetric forms disconnected from existing fabrics, and altered configurations of open and semi-open spaces. Such patterns have been widely documented in studies on the transformation of vernacular architecture (Bianca, 2000; Vellinga et al., 2008).

In rural areas influenced by tourism development and second-home expansion, research in rural planning and human geography indicates that these constructions can lead to gradual transformations in the physical patterns of the built environment (Gallent et al., 2005; Müller, 2011). Under such conditions, processes of formal and spatial diffusion may occur, whereby indigenous residents-responding to dominant aesthetic and economic values-gradually reproduce elements of emerging architectural models in their own housing practices. This process, identified in vernacular transformation literature as a mechanism of incremental change, can weaken traditional spatial continuity and contribute to the transformation of rural housing identity (Rapoport, 2005).

At the micro scale, these changes extend beyond alterations in building form. They may affect the role of nature within domestic spatial organization, the configuration of transitional spaces, patterns of openings and entrances, and the visual and spatial relationship between houses and surrounding landscapes. From this perspective, the impact of second homes on rural housing can be understood as part of a broader process of built-environment identity transformation in rural settlements, in which indigenous architectural logics are progressively replaced by new construction paradigms (Antrop, 2005; Woods, 2010).

Accordingly, the micro-scale impacts of second-home development can be summarized along three main dimensions:

1. potential changes in building materials and architectural styles relative to indigenous patterns;
2. potential transformations in the spatial organization of rural houses;
3. Processes of non- indigenous adaptation and the gradual modification of rural settlement typologies.

5. *Environmental Familiarity and Aesthetic Bias*

Environmental familiarity refers to the gradual knowledge and lived experience individuals acquire through repeated engagement with surrounding spaces, playing a critical role in environmental perception and aesthetic judgment. Classical studies demonstrate that repeated exposure to environments increases perceptual clarity, reduces ambiguity, and fosters more positive evaluations of space (Herzog & Smith, 1988; Kaplan & Kaplan, 1989). When environments undergo physical or visual change, initial negative reactions or feelings of estrangement are common; however, continued exposure and cognitive adaptation processes can lead to the gradual stabilization of transformed environments within residents' perceptual frameworks (Nasar, 1994).

This mechanism aligns with the concept of the mere exposure effect, which suggests that repeated encounters can increase acceptance and even preference toward new elements, even when they initially appear unfamiliar or undesirable (Montoya et al., 2017; Zajonc, 1968). In landscape perception research, studies similarly indicate that repeated experience and progressive familiarity with new elements can reduce visual conflict, enhance legibility, and generate more balanced evaluations of environmental change (Tveit et al., 2006; Van den Berg & Koole, 2006). In rural settings, this process helps explain why permanent residents may exhibit more moderate reactions or neutral assessments toward emerging structures such as tourism villas over time.

Overall, environmental familiarity and lived experience can produce a form of aesthetic bias, whereby residents evaluate landscape change less on the basis of objective aesthetic criteria and more through habitual perception and repeated experience. This conceptual framework provides a useful lens for interpreting variations in residents' responses to villa development and their perceptions of landscape quality in the studied villages.

Study Area: *Rural Settlements and the Spatial Extent of Second-Home Development*

Tabriz, in addition to its historical and cultural attractions, boasts significant natural and human-made rural attractions. Due to their proximity to the Tabriz metropolis, these areas have become popular destinations for recreation and holidaymaking among urban residents. One notable example is the southeastern corridor of Tabriz County, adjacent to the Mehranehroud River. Benefiting from a favorable climate in recent years, this corridor has attracted a growing number of tourists to the villages located in the Liqvan Valley and the orchard areas surrounding Heravi and Beyraq villages, thereby stimulating the growth of second-home tourism in the region.

Heravi village is located in Meydan-Chay Rural District, the Central District of Tabriz County, within East Azerbaijan Province, according to the most recent national administrative divisions (Revision of the Heravi Rural Guide Plan, 2014). The local economy is primarily based on horticulture and livestock farming, with service- and trade-related activities functioning as complementary livelihood sources. Beyraq village is also situated within the Meydan-Chay Rural District, approximately 1.5 km from Heravi and about 20 km from the metropolitan area of Tabriz. Similar to Heravi, the physical development of Beyraq has occurred along mountainous slopes with an eastern orientation, resulting in a relatively regular, terraced settlement pattern.

Historically, both villages exhibited homogeneous and cohesive built fabrics. Indigenous housing patterns in Heravi and Beyraq predominantly consisted of one- or two-story structures built above a ground floor typically used for livelihood-related and everyday household activities. This construction pattern largely reflected local socio-economic conditions and rural lifestyles and can still be observed in nearby settlements, including the historic village of Liqvan (Beyraq Rural Guide Plan, 2001).

Over the past two decades, tourism-related second-home construction has expanded significantly within agricultural lands and gardens surrounding Heravi, as well as in the corridor between Heravi and Beyraq. The resulting concentration of villa development is considered unprecedented within East Azerbaijan Province and continues to grow. Figure 1 illustrates the geographical location of the studied rural settlements.

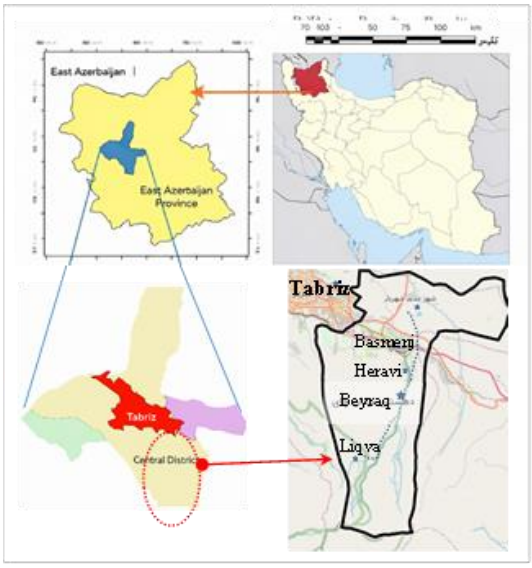

Figure 1: *Geographical location of the study area.* (Authors).

A comparative analysis of tourism villas and indigenous rural housing in Heravi and Beyraq reveals profound differences in spatial structure, materials, architectural style, and patterns of space use. Tourism villas are typically constructed using modern materials, large volumetric forms, and expressive architectural elements derived from globalized and urban-oriented styles. These buildings are primarily designed to meet the aesthetic, consumptive, and recreational demands of tourists and non-local owners. In contrast, indigenous rural houses are characterized by simple structures and locally available materials, reflecting livelihood practices, climatic conditions, and cultural traditions of the region.

Differences in the use of open and semi-open spaces further highlight two distinct approaches to dwelling and landscape: one oriented toward display and consumption, and the other toward functional responsiveness to everyday needs. Villa developments frequently employ complex volumetric forms aligned with urban architectural styles, incorporating decorative domes, turrets, large arched windows, multiple terraces, monumental entrances, and, in some cases, pitched roofs (Figure 2). These villas tend to rely on globally recognizable modern or classical decorative elements, with limited reference to indigenous symbolic motifs or natural patterns. Such characteristics not only create a pronounced visual contrast with existing rural housing fabrics but also reflect efforts to express social status and distinctive aesthetic preferences. Recent second-home construction has also altered village scale and visual character, disrupted the coherence of the natural landscape and exerting additional pressure on environmental resources. Consequently, the expansion of villas along the edges of village fabrics has produced a form of spatial and cultural duality within these settlements, reshaping both their physical structure and lived experience.

Figure 2: *Non-indigenous architectural elements in second-home designs within the rural study area.* (Authors).

Methodology

This study adopts an applied research purpose and a descriptive-analytical nature, utilizing a sequential mixed-methods design (qualitative → quantitative)**.** The research process comprised two main phases, detailed below to ensure clarity and replicability.

Phase 1: *Qualitative Exploration and Model Development*

The objective of this phase was to identify and define the core constructs of the physical-environmental impacts of second-home development. This was achieved through:

1. A comprehensive theoretical review and deductive content analysis of key literature on environmental perception, aesthetics, and rural transformation.
2. Synthesis of the extracted concepts to establish the initial conceptual framework comprising four first-order constructs.
3. The outcome was a refined, design-oriented model which served as the basis for developing the measurement instrument.

Phase 2: *Quantitative Data Collection and Analysis*

This phase aimed to empirically test the proposed model.

Step 1: *Questionnaire Development*

A researcher-designed questionnaire was constructed, as no pre-existing instrument captured the specific multi-scalar and design-oriented perceptions targeted in this study. The items were directly derived from the four constructs identified in Phase 1:

1. Formal Aesthetics (e.g., spatial order, visual coherence, novelty).
2. Symbolic Aesthetics (e.g., traditional symbols, status markers, indigenous materials).
3. Macro-scale Impacts (changes to the overall rural landscape and its character).
4. Micro-scale Impacts (physical changes to rural houses through imitation).
5. All items were measured on a five-point Likert scale.

Step 2: *Validity and Reliability Assessment*

The instrument was rigorously validated:

1. Content Validity: Assessed by eight architecture experts using the Content Validity Ratio (CVR) and Index (CVI).[i]
2. Pilot Test and Reliability: A pilot study (n=20) was conducted. Internal consistency was confirmed via Cronbach's alpha in SPSS 22.
3. This process refined the initial 17 items down to 12 valid and reliable items for the final questionnaire.

Step 3: *Sampling and Data Collection*

The study population consisted of permanent residents in Heravi and Beyraq villages (Tabriz County). The sample size was determined using the Morgan table, resulting in 260 respondents from Heravi and 302 from Beyraq. Given the physical and social similarities between the villages, data were pooled for analysis.[ii]

Step 4: *Data Analysis Method*

The study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3, chosen for its suitability for predictive research, complex models with formative constructs, and medium sample sizes. The analysis followed a two-step approach:

1. Measurement Model Assessment: Evaluating the reflective-formative model through factor loadings, outer weights, and reliability/validity metrics.
2. Structural Model Assessment: Testing the hypothesized relationships using path coefficients, R^2 values, effect size (f^2), and predictive relevance (Q^2).

The overarching research question examines both whether second-home development influences residents' perceptions and through which specific components this influence occurs. To address the "through which components" aspect empirically, the following hypotheses were formulated. Each hypothesis corresponds to one of the four physical-aesthetic components derived from the theoretical framework, testing its specific role in shaping the overall perceived impact. The research hypotheses are as follows:

- **Main hypothesis:** Based on the perceptions of permanent residents in Heravi and Beyraq villages, second-home development has a significant impact on physical-environmental outcomes in rural settlements.
- **Hypothesis 1:** Residents' perceptions of the formal aesthetic characteristics of villas have a significant effect on the overall physical-environmental impacts.
- **Hypothesis 2:** Residents' perceptions of the symbolic and decorative aesthetic characteristics of villas have a significant effect on the overall physical-environmental impacts.
- **Hypothesis 3:** Residents' perceptions of changes in the rural landscape resulting from second-home development have a significant effect on the overall physical-environmental impacts.

- **Hypothesis 4:** Residents' perceptions of physical changes in rural houses resulting from imitation of second homes have a significant effect on the overall physical-environmental impacts.

Data Analysis and Results

Following the assessment of the reliability and validity of the measurement instrument and the removal of unsuitable items, the final version of the questionnaire was developed based on the initial indicators and organized according to the constructs presented in Table 1. Data obtained from 562 completed questionnaires collected across the two study villages were compiled and subsequently analyzed using SPSS 22 to examine descriptive statistics, including means and standard deviations.

Table 1: *Characteristics of the study constructs and variables, and their descriptive statistics* (Authors).

Second-Order Latent Construct	First-Order Latent Construct	Item Code	Item Description	Mean	SD	Conceptual Explanation
Physical-Environmental Impacts	Formal Aesthetics	FA1	*Novelty of architectural style in villa construction*	3.37	1.43	*Respondents' attitudes toward the influence of villas on architectural form and style (Reflective)*
		FA2	*Preference for the architectural style of tourism villas*	3.43	1.37	
		FA3	*Influence of façade design style on personal taste*	3.52	1.37	
		FA4	*Desire for similarity between one's own house and villas*	3.68	1.28	
	Symbolic Aesthetics	SA1	*Tendency to use symbolic and decorative elements in housing inspired by villas*	3.90	1.21	*Reflects individual perceptions of symbolic and decorative influences of villas (Reflective)*
	Rural Landscape (Macro Scale)	RL1	*Impact of villas on land-use change and shaping the rural landscape*	3.99	1.16	*Respondents' perceptions of macro-scale landscape transformations (Formative)*
		RL2	*Change in villagers' perception of the rural landscape due to villa construction*	2.86	1.58	
	Physical Characteristics of Rural Houses (Micro Scale	RH1	*Encouragement to incorporate green space and natural elements into rural houses under the influence of villas*	3.78	1.29	*Different dimensions of physical change in rural housing influenced by tourism-related second homes, each contributing independently to the construct (Formative)*
		RH2	*Inclination to use indigenous materials when applied in villas*	3.70	1.24	
		RH3	*Influence of visual and spatial connection with nature and landscape*	3.56	1.34	
		RH4	*Influence of the large scale and massing of villas*	3.66	1.33	
		RH5	*Influence of villa entrance design*	3.53	1.46	

The results of the descriptive statistics indicate that, from the respondents' perspective, the various dimensions of physical-environmental impacts have been experienced at a relatively high level. The highest mean value corresponds to the symbolic aesthetics construct (M = 3.90, SD = 1.21), reflecting residents' perceptions of the influence of decorative and symbolic aspects of second homes on the rural environment and indigenous housing. This finding suggests a noticeable penetration of non-indigenous visual elements into the façades and decorative details of rural buildings.

This is followed by the physical characteristics of rural houses construct (M = 3.64, SD = 0.88), indicating that the influence of second homes and emerging dwelling patterns on the structure and spatial organization of rural houses has been perceptible. The formal aesthetics construct (M = 3.50, SD = 1.06) further confirms that residents have, to some extent, observed the impact of second homes on the form and architectural style of village buildings. However, the relatively high dispersion of responses in this dimension points to a degree of heterogeneity in residents' perceptions.

Finally, the rural landscape construct, with a mean of 3.42 and a standard deviation of 0.98, exhibits the lowest score among the dimensions. This suggests that changes at the macro scale of the village landscape, while perceptible, are regarded by respondents as less pronounced than micro-scale physical and aesthetic transformations. This pattern may be attributed to the concentration of second-home development in peripheral areas surrounding the studied villages, which potentially moderates the direct visual impact of this phenomenon on the overall rural landscape.

Structural Equation Modeling

Given that the indicators associated with the aesthetic and perceptual landscape constructs reflect respondents' subjective perceptions, these constructs were specified as reflective. In contrast, the indicators related to the physical characteristics of rural houses describe independent dimensions of physical change; therefore, this construct was defined as formative.

In addition, due to the inverse correlation observed between the indicators of the rural landscape construct-and considering that one indicator refers to objective aspects of landscape change (such as land-use conversion of agricultural lands and orchards), while the other addresses perceptual and value-based dimensions-these indicators were interpreted as representing distinct and independent facets of the landscape phenomenon. Accordingly, the rural landscape construct was also specified as formative, allowing each indicator to contribute a unique explanatory role in capturing the overall concept of landscape.

The overarching construct of physical-environmental impacts was subsequently modeled as a second-order formative construct, composed of the four aforementioned dimensions. This hierarchical structure enables a comprehensive representation of how multiple, distinct physical and perceptual dimensions collectively shape residents' overall evaluation of the impacts of second-home development (Figure 3).

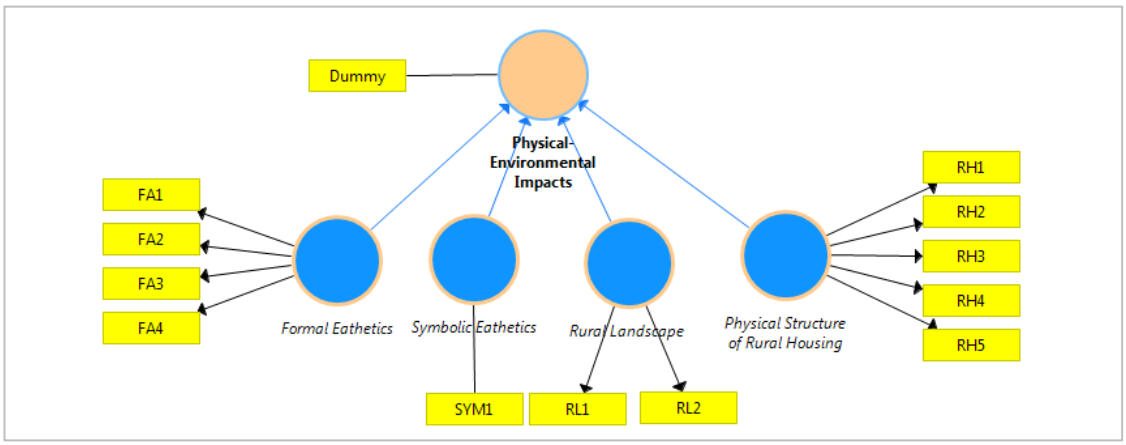

Figure 3: *Latent constructs and model indicators as specified in SmartPLS* (Authors).

Measurement Model

In the first stage of analysis (the measurement model), the significance of outer loadings and outer weights, as well as the reliability and validity of the constructs, were examined. During the initial assessment of the measurement model, indicator RH4 within the formative construct "Physical Characteristics of Rural Houses" was removed due to its low outer weight, lack of statistical significance ($p > 0.05$), and conceptual inconsistency with the remaining indicators.

Following the removal of this indicator, the model was re-estimated, and the bootstrapping procedure was repeated. Table 2 presents the final results of the measurement model after model refinement and re-estimation.

Table 2: *Measurement model indicators in the studied villages* (Authors).

Construct	Indicator	Outer Loadings (O)	Outer Weights	*p*-value	*t*-value	VIF	Significance Status
Formal Aesthetics	FA1	0.680	-	0.000	12.520	-	Significant
	FA2	0.855	-	0.000	30.712	-	Significant
	FA3	0.806	-	0.000	20.287	-	Significant
	FA4	0.738	-	0.000	14.675	-	Significant
Symbolic Aesthetics	SA1	1.000	1.000	-	-	-	Significant
Rural Landscape	RL1	0.045	0.049	0.701	0.385	1.000	not significant (retained for theoretical relevance)
	RL2	0.999	0.999	0.000	64.039	1.000	Significant
Physical Characteristics of Rural House	RH1	0.716	0.418	0.007	2.540	1.714	Significant
	RH2	0.692	0.324	0.041	2.114	2.046	Significant
	RH3	0.673	0.362	0.020	2.221	2.326	Significant
	RH5	0.690	0.338	0.030	2.171	2.165	Significant

In the first stage of the model, the reflective construct formal aesthetics demonstrated satisfactory performance in terms of internal consistency, reliability, and convergent validity. The value of Cronbach's alpha (0.787) and composite reliability ($CR = 0.855$) both exceeded the recommended threshold of 0.70, confirming adequate internal consistency among the indicators. In addition, the average variance extracted (AVE) was 0.598, surpassing the minimum criterion of 0.50 and indicating acceptable convergent validity. The factor loadings ranged from 0.680 to 0.855 and were all statistically significant at the 0.001 level. These results indicate that the indicators of the formal aesthetics construct reliably and validly capture the intended concept. Substantively, this suggests that in both villages, visible changes in architectural form and detailing have become stable and perceptible reference points in residents' evaluations.

The symbolic aesthetics construct, due to its clearly defined conceptual nature and its derivation from the qualitative phase of the study, was modeled as a single-item construct. In this case, its validity and credibility are supported through theoretical grounding and the qualitative research framework rather than internal consistency measures.

Within the formative construct rural landscape, indicator RL1, despite exhibiting a relatively high mean value (≈ 4.0), showed a very low outer weight and lacked statistical significance. However, a closer examination of the construct logic and research context reveals that RL1 is the only indicator that directly captures residents' perceptions of macro-scale changes in the overall village landscape. Removing this indicator would therefore eliminate this conceptual dimension from the model altogether. Moreover, differences in the intensity and spatial extent of second-home development between the two study villages (Heravi and Beyraq), as well as variations in residents' exposure to this phenomenon, have likely contributed to heterogeneous perceptions. In Heravi, the greater concentration of villas within or adjacent to the residential fabric has made landscape changes more visible and salient, whereas in Beyraq, such effects have not yet translated into a clearly perceived physical transformation. Accordingly, RL1 was retained in the model despite its low statistical significance, based on its theoretical necessity and its role

in representing the macro-scale landscape dimension. Nevertheless, findings related to this dimension are interpreted with caution.

By contrast, indicator RL2 exhibited an exceptionally high loading (0.999) and a strong outer weight (0.999), with a highly significant t-value ($t = 64$, $p < 0.001$), indicating a decisive role in shaping the rural landscape construct. This indicator captures the core of respondents' acceptance and evaluation of landscape change and therefore demonstrates very strong convergent validity and structural relevance.

For the formative construct of physical characteristics of rural houses, all outer weights were statistically significant ($p < 0.05$), and the variance inflation factor (VIF) values were below 3, indicating the absence of multicollinearity and the adequacy of the formative specification. Complementary loadings also exceeded the commonly accepted minimum threshold (0.65), confirming conceptual alignment between the indicators and the construct. Accordingly, this construct demonstrates robust and reliable performance within the structural model. The output of the measurement model as generated in SmartPLS is presented graphically in Figure 4.

Discriminant validity was assessed using the HTMT[iii] criterion exclusively for the reflective constructs. The HTMT value between formal aesthetics and symbolic aesthetics was 0.207, well below the recommended threshold of 0.85, thereby confirming adequate discriminant validity between these two constructs. Following this step, the contributions of the four dimensions to the overarching construct of physical-environmental impacts were evaluated.

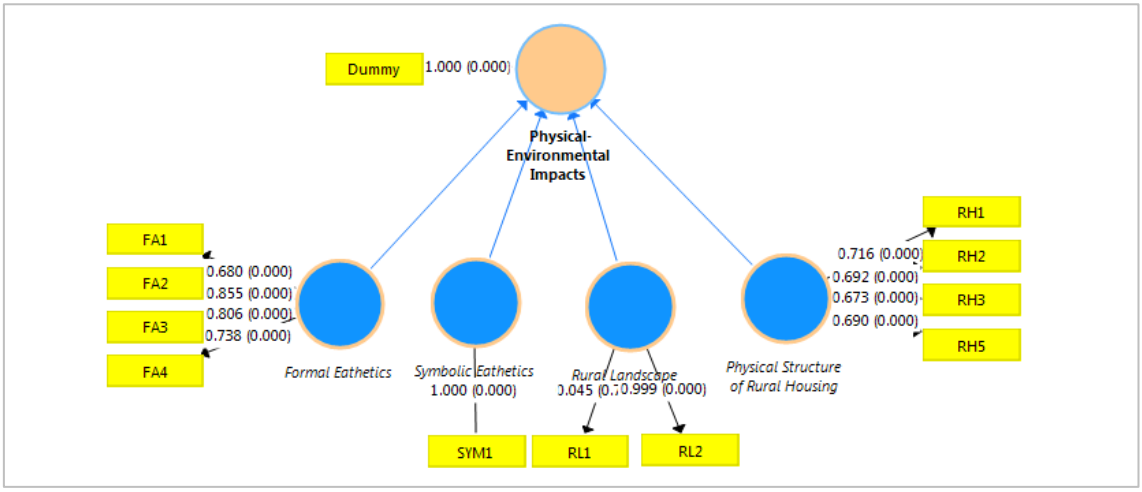

Figure 4: *Measurement model diagram as specified in SmartPLS* (Authors).

Structural Model

The evaluation of the structural model in the second stage revealed that among the four dimensions, the rural landscape construct exerted the strongest effect on the overarching construct of physical-environmental impacts ($\beta = -0.273$, $p < 0.001$, $f^2 = 0.067$). This was followed by formal aesthetics, which demonstrated a negative yet statistically significant effect ($\beta = -0.205$, $p < 0.001$, $f^2 = 0.038$), indicating its substantial role in shaping respondents' perceptions. In contrast, the physical characteristics of rural houses ($\beta = 0.058$, $p = 0.193$, $f^2 = 0.003$) and symbolic aesthetics ($\beta = 0.023$, $p = 0.585$, $f^2 = 0.001$) did not show statistically significant effects and contributed only marginally to explaining variance in the higher-order construct (Figure 5).

The R^2 value obtained for the overarching construct of physical-environmental impacts was 0.141, which, according to commonly used PLS criteria, can be considered relatively weak. Nevertheless, in models where the higher-order construct is specified as formative and its dimensions are grounded in spatial and physical perceptions, such levels of explanatory power are common and methodologically acceptable[iv].

Given that the outer weights of all first-order constructs were statistically significant and the formative specification of the higher-order construct functioned appropriately, the reported R^2 value is sufficient for model interpretation and indicates that the four dimensions contribute meaningfully to explaining overall perceptions of physical-environmental impacts.

In addition, the Q^2 value of 0.115 obtained through the blindfolding procedure indicates that the structural model demonstrates an acceptable level of predictive relevance. Considering that formative models typically exhibit limited effect sizes and that relationships within such models naturally yield moderate predictive power, this Q^2 value falls within an acceptable range (Hair et al., 2018, 2022) and suggests that the model is capable of predicting a meaningful proportion of variance in respondents' perceptions of physical-environmental impacts.

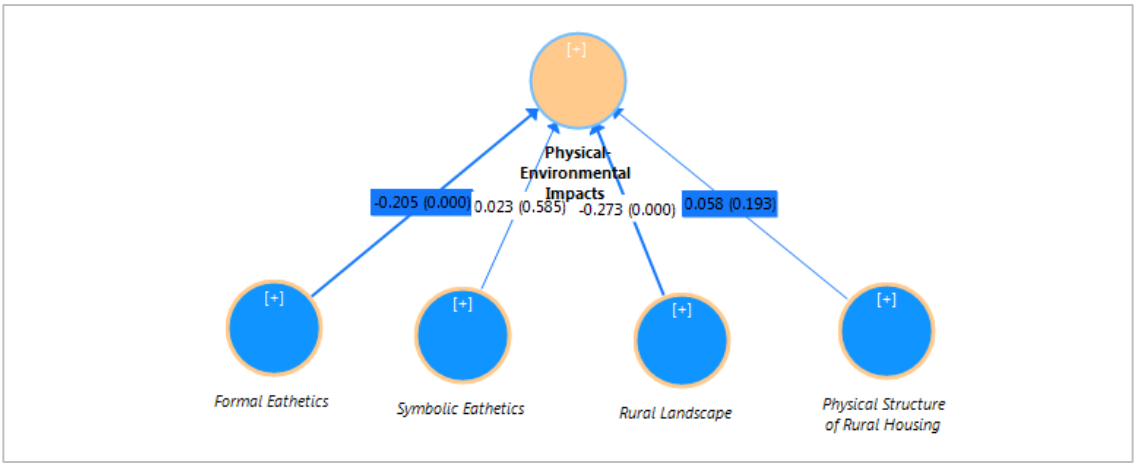

Figure 5: *Structural model of the study* (Authors).

Discussion

The analysis identifies rural landscape transformations and formal aesthetics as the primary perceptual drivers, while the effects of house-scale changes and symbolic aesthetics are negligible. This pattern necessitates a discussion centered on scales of perception and adaptive processes. These findings suggest that rural residents' evaluations of physical-environmental impacts are influenced more strongly by landscape-level transformations and macro-scale changes in the rural environment than by decorative elements or micro-scale alterations within individual housing units.

The negative path coefficients observed for the constructs of rural landscape and formal aesthetics do not indicate a reduction in the actual physical-environmental impacts of tourism-related second-home development. Rather, they reflect a perceptual attenuation effect, whereby increased visual familiarity and prolonged exposure to landscape transformations moderate residents' evaluative judgments of environmental change. In other words, as residents become more accustomed to new architectural forms and altered landscape configurations, the perceived severity of physical-environmental impacts tends to diminish, even though the material transformations themselves persist.

This pattern suggests the presence of perceptual adaptation and environmental habituation processes, widely documented in environmental perception and landscape preference literature. Individuals who either find the emerging formal and architectural patterns aesthetically acceptable or have gradually incorporated landscape changes into their everyday spatial experience are less likely to interpret these transformations as disruptive or detrimental. Consequently, stronger acceptance of formal characteristics or higher familiarity with landscape change corresponds to lower reported intensity of perceived impacts, resulting in negative structural coefficients.

Importantly, these findings should not be interpreted as evidence that second-home development alleviates physical-environmental pressures. Instead, they underscore the distinction between objective spatial transformation and subjective environmental evaluation. The results indicate that residents' judgments are shaped not only by the magnitude of physical change but also by adaptive cognitive mechanisms through which repeated exposure recalibrates aesthetic expectations and evaluative thresholds. Similar adaptive patterns have been reported in both classical and contemporary studies of environmental perception, where familiarity with altered landscapes has been shown to reduce perceptual sensitivity and attenuate negative aesthetic evaluations over time (Kaplan & Kaplan, 1989; Nasar, 1994; Ning et al., 2024).

Conclusion

Contemporary studies on rural environmental perception indicate that individuals lived experience of space emerges from the interaction between physical qualities, socio-cultural meanings, and functional transformations driven by development interventions. In recent decades, the introduction of consumption-oriented land uses-such as tourism-related second homes-has significantly reshaped how indigenous rural residents perceive their environment. This is largely because such developments are commonly associated with temporary patterns of occupation, non-local investment, and rapid visual and spatial transformations.

Against this backdrop, the present study set out to examine how indigenous residents of the villages of Heravi and Beyraq, located in the hinterland of the Tabriz metropolitan area, perceive the physical-environmental impacts of second-home development on the aesthetic, landscape, and physical characteristics of rural housing. Accordingly, this section synthesizes the findings derived from testing the study's conceptual model, which was designed to explain the physical-environmental consequences of tourism-related second-home development within the studied rural contexts.

The results of the measurement model assessment confirmed that the reflective constructs demonstrate satisfactory internal consistency and convergent validity. Specifically, Cronbach's alpha and composite reliability values exceeded the recommended threshold of 0.70, while average variance extracted (AVE) values were above 0.50, and all indicator loadings were statistically significant ($p < 0.001$). Discriminant validity was also supported based on the HTMT criterion. The formative constructs exhibited acceptable outer weights and variance inflation factor (VIF) values below the critical threshold, indicating the absence of multicollinearity among indicators. Overall, these findings confirm the adequacy of the measurement model and provide a robust basis for evaluating the relationships within the structural model.

Analysis of the structural model revealed that among the four dimensions examined, the "rural landscape" construct exerted the strongest and most significant effect on the higher-order construct of "physical-environmental impacts." This was followed by "formal aesthetics," which also showed a significant but negative effect. In contrast, the constructs representing the physical structure of rural houses ($\beta = 0.058$, $p = 0.193$) and symbolic aesthetics ($\beta = 0.023$, $p = 0.585$) did not exhibit significant effects on the dependent construct. The coefficient of determination (R^2) for the higher-order construct was 0.141, while the predictive relevance value ($Q^2 = 0.115$) indicates an acceptable level of predictive capability for the structural model (Table 3).

The resulting pattern indicates that rural residents' perceptions of the physical-environmental consequences of second-home development depend far more on large-scale transformations of the rural landscape than on small-scale changes within individual housing units or symbolic architectural elements. The statistical significance of the "rural landscape" construct underscores the decisive role of visual change, spatial scale, and landscape continuity in shaping residents' environmental judgments. In practice, landscape transformation is often the first domain in which local perceptions are affected, as increasing villa density is commonly accompanied by reduced visual coherence and disruption of traditional spatial structures.

Moreover, the negative path coefficients associated with the "rural landscape" and "formal aesthetics" constructs suggest that as visual acceptance or habituation to new construction patterns increases, the

perceived intensity of physical-environmental impacts diminishes. This pattern can be interpreted as evidence of perceptual adaptation and environmental habituation, a process through which continuous exposure to physical change moderates' initial negative evaluations. The lack of statistical significance for micro-scale constructs further indicates that minor alterations in house form play a secondary role in residents' overall perceptions when compared to landscape-level transformations.

Table 3: *Structural model results and predictive power of the model.* (Authors).

Path	β	*p*-value	f^2	Result	Model fit indices	
					Coefficient of determination (R^2)	Predictive relevance (Q^2)
Form-based aesthetics → Physical-environmental impacts	-0.205	0.000	0.038	Supported	0.141	0.115
Symbolic aesthetics → Physical–environmental impacts	0.023	0.585	0.001	Not supported		
Rural landscape → Physical–environmental impacts	-0.273	0.000	0.067	Supported		
Rural house physical structure → Physical–environmental impacts	0.058	0.193	0.003	Not supported		

Beyond the statistical significance of individual relationships, the proposed structural model offers important implications for design practice. The dominance of landscape-scale effects suggests that permanent residents' evaluations are influenced less by isolated changes in building form and more by design decisions that alter visual coherence, spatial scale, and the continuity between the village and its surrounding environment. Conversely, the non-significance of micro-scale changes at the level of individual dwellings implies that fragmented or isolated physical interventions, when not integrated into the broader landscape structure, do not play a determining role in shaping environmental perception. From a design perspective, these findings emphasize the necessity of adopting context-sensitive strategies in second-home development approaches that prioritize collective visual integration and landscape coherence over independent formal expression. The study, therefore, approaches second-home development through a multi-scalar design lens, foregrounding the central role of rural landscape structure in forming residents' perceptual experiences.

Despite providing empirical evidence on the physical-environmental impacts of second homes, this study is subject to some limitations. First, the research was conducted in two specific villages, and the generalization of findings to other rural contexts with different development patterns should be approached with caution. Second, the cross-sectional nature of the study limits the ability to capture the dynamic evolution of perceptual change over time. Building on the present findings, future research could expand the study scope to include villages experiencing varying intensities and patterns of second-home development, thereby enabling a more nuanced comparative understanding of the physical-environmental consequences of this phenomenon. In addition, longitudinal studies would allow for an examination of gradual shifts in residents' perceptions and the processes of environmental habituation in response to new physical interventions. Integrating perceptual data with objective landscape analysis indicators-such as visual metrics, morphological measures, or GIS-based indices-would further provide a complementary research pathway for simultaneously assessing physical change and perceptual response. Finally, examining differential responses among social groups, including permanent residents and second-home owners, could add further analytical depth to future studies.

Notes:

[1] During the pre-design phase, a table of items was prepared. Eight domain experts (professors in the field of architecture) were asked to determine the Content Validity of these items by selecting one of the following options:

1. This item is Essential.
2. This item is Useful but not Essential.
3. This item is Not Essential.

Furthermore, the Content Validity Index (*CVI*) for each item was calculated based on choices ranging from "Completely Relevant" to "Irrelevant."

After the validation forms were completed by the expert panel, the votes were aggregated, and the Content Validity Ratio (*CVR*) for each item was calculated using the following formula (Lawshe, 1975):

$$CVR = \frac{N_e - N/2}{N/2}$$

Where:

- *N*: Total number of experts (evaluators) (here *N*=8).
- *Ne*: Number of experts who selected the "Essential" option.

The minimum permissible *CVR* value based on this formula and for 8 evaluators was set at 0.75.

The *CVI* index was computed by dividing the number of experts who selected "Completely Relevant" and "Relevant but needs revision" by the total number of experts. If this value was less than 0.70, the item was rejected. If the CVI fell between 0.70 and 0.79, the item required revision, and a value greater than 0.79 was deemed acceptable. Based on these calculations, 5 out of the total 19 items were eliminated, and 3 items were subjected to revision.

[2] The aim of the present study is to explicate the overall pattern through which the development of tourism-related second homes influences the physical and cultural dimensions of rural dwelling in the peri-urban areas of Tabriz. Accordingly, the primary focus is on identifying the general structure of relationships among the constructs rather than on comparing minor differences between individual villages. Data aggregation under these conditions not only increases the sample size but also enhances the precision of path coefficient estimates and improves the generalizability of the proposed model.

[3] Heterotrait-Monotrait Ratio

[4] Some researchers have suggested a minimum threshold of 0.10 for R^2 in PLS-SEM models (Hair et al., 2018), and more recent studies indicate that even lower R^2 values in endogenous PLS models can be considered largely acceptable and practically meaningful (Ozili, 2022).

Acknowledgement

This article is derived from the PhD dissertation of **Marzieh Mohebbi**, entitled *"Explaining the Impacts of Tourism-Related Second-Home Development on the Culture of Dwelling in Indigenous Rural Housing (Case Study: Heravi and Beyraq Villages, Tabriz County)"*. The dissertation is being conducted at the Faculty of Architecture and Urban Planning, Tabriz Islamic Art University, under the supervision of Dr. **Parisa Hashempour** and Dr. **Farzin Haghighatparast.**

References

Antrop, M. (2005). Why landscapes of the past are important for the future. *Landscape and Urban Planning*, *70*(1), 21–34. https://doi.org/10.1016/j.landurbplan.2003.10.002

Antrop, M., & Van Eetvelde, V. (2017). Landscape perspectives: The holistic nature of landscape. *Springer*. https://doi.org/10.1007/978-94-024-1183-6

Bianca, S. (2000). Urban form in the Arab world: Past and present. https://dokumen.pub/urban-form-in-the-arab-world-past-and-present-paperbacknbsped-0500282056-9780500282052.html

Daniel, T. (2001). Whither scenic beauty? visual landscape quality assessment in the 21st century. *Landscape and Urban Planning*, *54*, 267–281. https://doi.org/10.1016/s0169-2046(01)00141-4

Fathy, H. (1986). Natural energy and vernacular architecture: Principles and Examples with reference to hot arid climates (W. Shearer & A. A. Sultan, Eds.). *University of Chicago Press.*

Gallent, N., Mace, A., & Tewdwr-Jones, M. (2005). Second homes | European Perspectives and UK policies (1st ed.). *Routledge.* https://www.taylorfrancis.com/books/mono/10.4324/9781315243580/second-homes-nick-gallent-alan-mace-tewdwr-jones

Gibson, James. J. (2014). The ecological approach to visual perception (classic edition) (1st ed.). *Psychology Press.* https://www.taylorfrancis.com/books/mono/10.4324/9781315740218/ecological-approach-visual-perception-james-gibson

Gobster, P. H., Nassauer, J. I., Daniel, T. C., & Fry, G. (2007). The shared landscape: What does aesthetics have to do with ecology? *Landscape Ecology. 22: 959-972.*, *22*. https://research.fs.usda.gov/treesearch/12551

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM) (3rd ed.). *Sage Publishing.* https://www.researchgate.net/publication/354331182_A_Primer_on_Partial_Least_Squares_Structural_Equation_Modeling_PLS-SEM

Hair, J. F., Risher, J., Sarstedt, M., & Ringle, C. M. (2018). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1). https://doi.org/10.1108/EBR-11-2018-0203

Hall, C. M., & Müller, D. K. (2004). Tourism, mobility and second-homes: Between elite landscape and common ground. https://www.researchgate.net/publication/292426206_Tourism_Mobility_and_Second-homes_Between_Elite_Landscape_and_Common_Ground

Hernández, B., Carmen Hidalgo, M., Salazar-Laplace, M. E., & Hess, S. (2007). Place attachment and place identity in natives and non-natives. *Journal of Environmental Psychology*, *27*(4), 310–319. https://doi.org/10.1016/j.jenvp.2007.06.003

Herzog, T. R., & Smith, G. A. (1988). Danger, mystery, and environmental preference. *Environment and Behavior*, *20*(3), 320–344. https://doi.org/10.1177/0013916588203004

Hunziker, M., Buchecker, M., & Hartig, T. (2007). Space and place – two aspects of the human-landscape relationship. In *A Changing World (pp.47-62)*. https://doi.org/10.1007/978-1-4020-4436-6_5

Islamic Azad University, Ahar Branch. (2001). *Tarhe Hadiye Roustaye Beyraq «Beyraq rural guide plan».* East Azerbaijan Province Housing Foundation of the Islamic Revolution.

Kaplan, R., & Kaplan, S. (1989). The experience of nature: A psychological perspective (pp. xii, 340). *Cambridge University Press.*

Kaplan, S. (1996). Environmental preference in a knowledge-seeking, knowledge-using organism. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*. Paperback. https://www.researchgate.net/publication/316377870_The_Theoretical_Foundations_of_Evolutionary_Psychology

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563–575.

Lewicka, M. (2008). Place attachment, place identity, and place memory: Restoring the forgotten city past. *Journal of Environmental Psychology*, *28*(3), 209–231. https://doi.org/10.1016/j.jenvp.2008.02.001

Lynnebakke, B., & Aasland, A. (2022). Striking roots: Place attachment of international migrants, internal migrants and local natives in three Norwegian rural municipalities. *ResearchGate*, *94*. https://doi.org/10.1016/j.jrurstud.2022.07.021

Menatti, L., Subiza-Pérez, M., Villalpando-Flores, A., Vozmediano, L., & San Juan, C. (2019). Place attachment and identification as predictors of expected landscape restorativeness. *Journal of Environmental Psychology*, *63*, 36–43. https://doi.org/10.1016/j.jenvp.2019.03.005

Montoya, R. M., Horton, R. S., Vevea, J. L., Citkowicz, M., & Lauber, E. A. (2017). A re-examination of the mere exposure effect: The influence of repeated exposure on recognition, familiarity, and liking. *Psychological Bulletin*, *143*(5), 459–498. https://doi.org/10.1037/bul0000085

Moore. (2021). Planning for place: Place attachment and the founding of rural community land trusts. *Journal of Rural Studies*, *83*(21–29). https://doi.org/10.1016/j.jrurstud.2021.02.007

Müller, D. (2008). Second homes in the Nordic countries: Between common heritage and exclusive commodity. *Scandinavian Journal of Hospitality and Tourism*, *7*(3). https://www.researchgate.net/publication/263461636_Second_Homes_in_the_Nordic_Countries_Between_Common_Heritage_and_Exclusive_Commodity

Müller, D. (2011). Second homes in rural areas: Reflections on a troubled history. *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography*, *65*(3). https://www.tandfonline.com/doi/abs/10.1080/00291951.2011.597872

Nasar, J. L. (1994). Urban design aesthetics: The evaluative qualities of building exteriors. *Environment and Behavior*, *26*(3), 377–401. https://doi.org/10.1177/001391659402600305

Naghsheh va Simaye Shahrestan Consulting Engineers. (2014). *Baznegari Tarhe Hadiye Roustaye Heravi. «Revision of the Heravi rural guide plan».* East Azerbaijan Province Housing Foundation of the Islamic Revolution.

Ning, F., Wang, H., Chien, Y.-C., Pan, H., & Ou, S.-J. (2024). An investigation into the shifting landscape preferences of rural residents in Taiwan and their relationship with ecological indicators. *Scientific Reports*, *14*(1), 27893. https://doi.org/10.1038/s41598-024-77045-x

Ode Sang, A., Sundli Tveit, M., & Fry, G. (2008). Capturing landscape visual character using indicators: Touching base with landscape aesthetic theory. *Landscape Research*, *33*(1). https://doi.org/10.1080/01426390701773854

Oliver, P. (2006). Built to meet needs: Cultural issues in vernacular architecture (1st ed.). *Routledge.* https://www.routledge.com/Built-to-Meet-Needs-Cultural-Issues-in-Vernacular-Architecture/Oliver/p/book/9780750666572

Olwig, K. R. (2019). The meanings of landscape: Essays on place, space, environment and Jus (1st ed.). Routledge. https://www.routledge.com/The-Meanings-of-Landscape-Essays-on-Place-Space-Environment-and-Justice/Olwig/p/book/9781138483934

Overvåg, K. (2011). (PDF) Second homes: Migration or circulation? *Norsk Geografisk Tidsskrift*, *65*(3). https://www.researchgate.net/publication/233018516_Second_Homes_Migration_or_Circulation

Ozili, P. K. (2022). The acceptable R-Square in empirical modelling for social science research (SSRN Scholarly Paper 4128165). *Social Science Research Network.* https://doi.org/10.2139/ssrn.4128165

Pitkänen, K., Lehtimäki, J., & Puhakka, R. (2020). How do rural second homes affect human health and well-being? review of potential impacts. *International Journal of Environmental Research and Public Health*, *17*(18). https://doi.org/10.3390/ijerph17186748

Rapoport, A. (1969). House form and culture (1st edition). Pearson.

Rapoport, A. (2005). Culture, architecture, and design. Locke Science Publishing Co., Inc. https://www.google.com/search?client=firefox-b-e&q=Rapoport%2C+A.+%282005%29.+Culture%2C+Architecture%2C+and+Design

Relph, E. (with Internet Archive). (1976). Place and placelessness. *London : Pion.* http://archive.org/details/placeplacelessne0000relp

Sáenz de Tejada, C., Santo-Tomás Muro, R., & Rodríguez Romero, E. J. (2021). Exploring landscape preference through photo-based Q methodology. Madrid seen by suburban adolescents. *International Research in Geographical and Environmental Education*, *30*(2), 1–24.

Scannell, L., & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology*, *30*(1), 1–10. https://doi.org/10.1016/j.jenvp.2009.09.006

Selman, P. (2012). Sustainable landscape planning: The reconnection Agenda. https://www.routledge.com/Sustainable-Landscape-Planning-The-Reconnection-Agenda/Selman/p/book/9781849712637

Smith, L. (2006). Uses of Heritage (1st Edition). *Routledge Book.* https://www.routledge.com/Uses-of-Heritage/Smith/p/book/9780415318310

Tuan, Y. F. (1977). Space and place the perspective of experience. *University of Minnesota Press.* https://www.scirp.org/reference/referencespapers?referenceid=1297516

Tveit, M. S., Ode Sang, A., & Fry, G. (2006). Key concepts in a framework for analysing visual landscape character. *Landscape Research*, *31*(3). https://www.researchgate.net/publication/248993938_Key_concepts_in_a_framework_for_analysing_visual_landscape_character

Van Den Berg, A. E., & Koole, S. L. (2006). New wilderness in the Netherlands: An investigation of visual preferences for nature development landscapes. *Landscape and Urban Planning*, *78*(4), 362–372. https://doi.org/10.1016/j.landurbplan.2005.11.006

Vellinga, M., Oliver, P., & Bridge, A. (2008). Atlas of vernacular architecture of the world (1st Edition). *Routledge.* https://www.routledge.com/Atlas-of-Vernacular-Architecture-of-the-World/Vellinga-Oliver-Bridge/p/book/9780415411516

Wartmann, F. M., Stride, C. B., Kienast, F., & Hunziker, M. (2021). Relating landscape ecological metrics with public survey data on perceived landscape quality and place attachment. *Landscape Ecology*, *36*(8), 2367–2393. https://doi.org/10.1007/s10980-021-01290-y

Woods. (2010). Rural. *Routledge.* https://www.routledge.com/Rural/Woods/p/book/9780415442404

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, *9*(2, Pt.2), 1–27. https://doi.org/10.1037/h0025848.