

Material Preference Patterns Across MBTI Personality Types in Private Residential Interiors Design

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Article Info

Article type:

Research Article

Article history:

Received August 1, 2026

Accepted September 07, 2026

Published online September 30, 2026

Keywords:

MBTI Personality Types, Material Preferences, Interior Architecture, Residential Interior Design, Environmental Psychology.

ABSTRACT

Objective: Human personality significantly influences environmental perception and spatial preferences. Previous research explored personality-based design using general frameworks, investigating the relationship between MBTI personality typologies and interior material preferences in residential settings remain limited. This study aims to investigate the association between MBTI personality types Analysts, Diplomats, Sentinels, and Explorers and material preferences in private residential interiors.

Methods: This descriptive–analytical research employed a correlational approach with 384 residents of villa houses in District 6 of Shiraz, Iran, selected through random sampling. Data were collected using the standardized MBTI questionnaire (87 items) and researcher-developed interior images depicting seven materials (brick, metal, stone, wood, glass, concrete, plaster). Instruments were validated through expert review and confirmed via Cronbach's alpha (>0.70). Data were analyzed using Chi-square tests, Cramer's V, and Correspondence Analysis in SPSS.

Results: Chi-square analysis revealed a significant association between personality types and material preferences ($\chi^2=37.394$, $df=18$, $p=0.005$; $V=0.180$, $p=0.005$). Wood was the most preferred material across all groups (35.4%). Analysts preferred wood (38.1%), stone (23.8%), and glass (17.1%). Diplomats strongly favored wood (64.0%), followed by plaster (16.0%). Sentinels favored wood (36.5%), stone (20.1%), and glass (17.5%). Explorers preferred stone (38.5%), wood (16.9%), and glass (15.4%). Correspondence analysis identified distinct material–personality clusters.

Conclusion: Findings confirm that MBTI personality types are significantly associated with material preferences in residential interiors, supporting the integration of psychological typologies into personalized interior design. This provides practical guidance for aligning material selection with occupants' psychological profiles to enhance spatial well-being and environmental satisfaction.

Cite this article: Karimaghaee, Sh., Haghpanah, M., & Rahimi, M. A. (2026). Material Preference Patterns Across MBTI Personality Types in Private Residential Interiors Design. *International Journal of Applied Arts Studies*, 11(3), 35-56.



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Publisher: Islamic Azad University, Yazd Branch.

Introduction

Human personality is shaped through a complex interaction among biological, sociological, and psychological factors (Mujahid et al., 2023). Recent studies indicate that biological aspects, including physical characteristics, nervous system functioning, and physiological chemical patterns, may indirectly influence fundamental behavioral processes and consequently contribute to the development of personality traits (Alzeer, 2025). From a sociological perspective, contextual factors such as family, education, society, and culture play a crucial role in shaping and refining personality development. Moreover, psychological dimensions, including motivation, attitudes, intelligence, interests, and emotions, significantly influence stable cognitive-behavioral patterns and contribute to the formation of individual identity and personality characteristics (Kohnke et al., 2025). To identify and analyze personality types, various psychometric instruments and assessment frameworks have been developed, each based on specific theoretical approaches and research objectives. Among the widely used personality assessment tools are the HEXACO Model, 16PF, DISC, NEO-PI-R, NPI, and EPQR (Celli et al., 2025). Furthermore, Felipe et al. (2023) investigated the level of acceptance and application of these psychometric tools and presented their findings through visual and diagram-based analyses (Felipe et al., 2023).

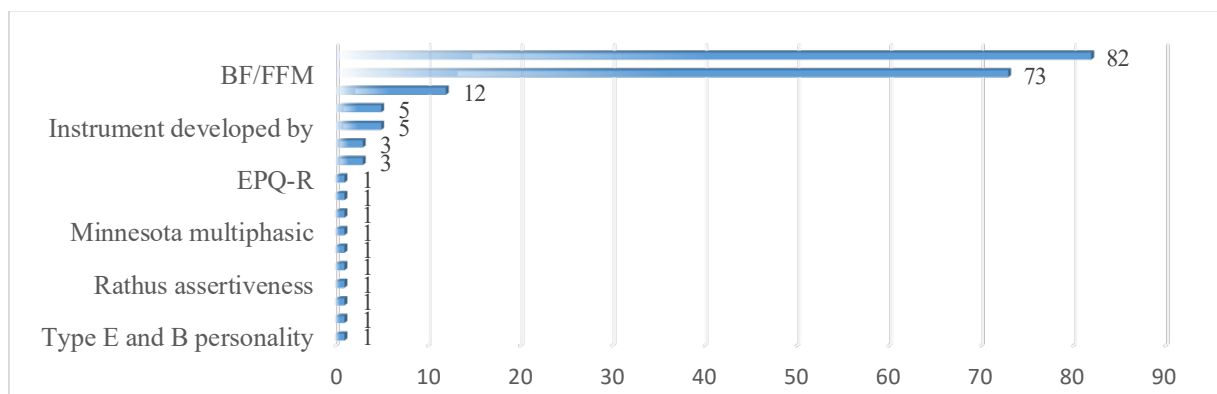


Figure 1. Frequency of acceptance of psychometric instruments (Felipe et al., 2023).

The Myers–Briggs Type Indicator (MBTI), introduced by Myers and Briggs, is a personality assessment framework primarily developed to identify individual personality dimensions, particularly the distinction between “Thinking” and “Feeling” preferences. One of the key aspects of this instrument is its ability to describe individuals’ approaches to decision-making processes (Purewal, 2025). Based on Carl Jung’s theory of psychological types, MBTI was developed to identify and analyze human personality patterns. The framework was expanded by Briggs and Myers, a mother–daughter research team from the United States and resulted in the classification of personality into sixteen distinct types. Accordingly, each individual is categorized into one of

these types through the combination of four personality dimensions, which collectively define their dominant personality profile (Martin, 2026). The interpretation of MBTI results is based on the psychological differences and contrasts among these sixteen personality types (Lee & Shin, 2024). Ultimately, these types are organized into four broader personality groups: Analysts, Diplomats, Sentinels, and Explorers (Luo, 2024).

Based on previous studies, a summary of the behavioral characteristics of individuals according to personality groups is presented in Table 1 and 2.

Table 1. Behavioral characteristics of individuals based on the four-category classification (BolvaryZadeh Dashtestani et al., 2025).

Personality Group	Personality and Behavioral Traits of Individuals
Analyst	This group represents personality types characterized by intellectual curiosity, strategic thinking, and a strong tendency toward innovation and problem-solving. They include individuals who develop creative strategies, explore new possibilities, generate original ideas, and approach challenges through analytical reasoning and continuous learning.
Diplomat	This group consists of individuals who are primarily driven by ideals, human values, and meaningful relationships. They are characterized by empathy, inspiration, and a desire to support positive change. Their ability to understand others, communicate effectively, and promote cooperation enables them to build strong interpersonal connections and pursue value-oriented goals.
Sentinel	This group includes personality types associated with practicality, responsibility, and a preference for stability and organization. They tend to focus on maintaining order, providing support, and ensuring effective coordination in daily life. Their commitment to reliability, protection, and assistance to others plays an important role in creating structured and secure environments.
Explorer	This group is defined by adaptability, curiosity, and a preference for direct experiences and experimentation. Individuals in this category are often creative, flexible, and action-oriented, seeking new opportunities and engaging with their surroundings through exploration. Their energetic and spontaneous nature encourages innovation, discovery, and the pursuit of dynamic experiences.

Table 2. Behavioral characteristics and personality traits of individuals based on the four MBTI categories.

Personality group	Cognitive characteristics	Behavioral characteristics	Decision-making style	Social and environmental characteristics
Analysts	Characterized by analytical thinking, interest in abstract concepts, and systematic structures (Lyu, 2024)	Strategic, critical, and perfection-oriented (Kuipers et al., 2009)	Based on logical reasoning, rational analysis, and efficiency-oriented approaches (Johnson et al., 1998)	Preference for challenging environments and complex conceptual structures; demonstrating strong capabilities in research, technology, and strategic management (Sample, 2017)
Diplomats	Characterized by meaning-oriented thinking, high imagination, and attention to human values (Lyu, 2024)	Empathetic, idealistic, creative, and adaptable (Furnham, 1996)	Rooted in ethical values, emotions, and human-centered considerations (Sample, 2017)	Preference for deep relationships, collaborative environments, and creative settings; demonstrating success in education, arts, and counseling (Furnham, 1996)
Sentinels	ed by realism, attention to details, and reliance on previous experiences (Kuipers et al., 2009)	Organized, responsible, and reliable (Furnham, 1996)	Based on objective realities, experience, and clearly defined rules (Johnson et al., 1998)	Preference for stability, security, and structured environments; associated with effectiveness in executive management (Sample, 2017)
Explorers	Characterized by experiential learning, present-focused attention, and rapid responses (Lyu, 2024)	Action-oriented, excitement-seeking, adaptable, and spontaneous (Kuipers et al., 2009)	Based on practical experiences and immediate responses to situations (Johnson et al., 1998)	Preference for dynamic, flexible, and diverse environments; associated with success in practical, artistic, and interactive activities (Furnham, 1996)

Architecture can be understood as a process characterized by a gap between design intentions and construction practices, where psychology contributes to improving coordination, reducing team-related conflicts, and enhancing trust among project stakeholders (Kheyrossadat, 2026). The relationship between human behavior and architecture is inherently reciprocal; spatial forms emerge from behavioral patterns and lifestyles while simultaneously supporting and shaping specific activities. This interaction is influenced by various environmental components, among which the responsiveness of physical space to activities and the presence of vegetation are identified as key factors, whereas invitational elements have a comparatively limited role (Kermani et al., 2024). In architecture, the selection and application of materials such as concrete, steel, wood, brick, glass, and stone play a fundamental role in creating functional, durable, and aesthetically valuable environments. Concrete, due to its high compressive strength and versatility, serves as a primary material in many contemporary buildings, enabling architects to

design large-scale spaces while maintaining structural durability (Al-Otaibi, 2024). Steel, with its exceptional strength-to-weight ratio, is particularly essential in high-rise buildings and structures requiring flexibility and resistance against dynamic loads (Cucuzza et al., 2024). Wood, as a renewable material, contributes to the environmental sustainability of architectural projects while providing thermal insulation, aesthetic qualities, and unique structural characteristics (Maier, 2024). Similarly, plaster has an important role in improving indoor environmental conditions due to its hygroscopic properties, which enable moisture regulation and contribute to indoor comfort and occupant well-being. Compared with materials such as soil, lime, and cement, gypsum-based materials demonstrate more effective performance in balancing indoor temperature and humidity. Furthermore, their mechanical properties, drying shrinkage behavior, and physical characteristics highlight their potential for creating healthier and more comfortable interior environments (Gomes et al., 2022). In interior architecture, material selection significantly influences the perception and experience of space, as material characteristics can affect users' psychological well-being and satisfaction. Previous research examining interior materials, including brick, stone, concrete, wood, glass, metal, and plaster, demonstrates that material type has a significant impact on users' preferences across different spatial scales. Although spatial size can also influence material preferences, this effect varies depending on the specific material. These findings emphasize the importance of considering users' perceptions and preferences in interior design strategies (Chen et al., 2025). Brick, as a traditional architectural material recognized for its thermal mass and durability, contributes to energy efficiency and remains a dominant material in various climatic contexts (Prommuang et al., 2024). Glass, through facilitating natural light penetration and establishing visual connections with the external environment, plays a significant role in contemporary architecture by enhancing occupant well-being. Additionally, reflections on glass surfaces can influence aesthetic perceptions and strengthen visual qualities within architectural spaces (Naqash, 2024). Finally, stone, known for its durability and timeless aesthetic appeal, introduces a sense of permanence, strength, and continuity into architectural designs (Zanier et al., 2024). Moreover, Shukla et al. examined the materials utilized in contemporary architecture in their research, as summarized in Table 3.

Table 3. Advanced Materials Used in Contemporary Architecture (Shukla et al., 2025).

Material	Key Characteristics	Main Advantages / Applications
High-Performance Concrete (HPC)	Enhanced concrete with mineral admixtures (e.g., silica fume, fly ash); compressive strength ≥ 80 MPa	High strength, durability, environmental resistance; suitable for structural applications
Ultra-High-Performance Concrete (UHPC)	Advanced concrete with exceptional mechanical properties	Enables thinner and lighter structural elements; ideal for bridges and architectural façades
Self-Healing Concrete	Autonomous crack repair capability	Reduces maintenance, extends service life, and improves

		sustainability
Flexible Concrete	Fiber-reinforced concrete with high ductility	Resists cracking under deformation; suitable for seismic regions
Insulated Concrete Forms (ICFs)	Concrete integrated with thermal insulation	Improves thermal performance, energy efficiency, and durability
Smart Materials	Materials responsive to environmental changes (e.g., electrochromic glass, phase-change materials)	Optimize daylight, thermal comfort, and building energy performance
Sustainable Wood Products	Renewable materials such as bamboo, engineered timber, and FSC-certified wood	Low environmental impact, natural insulation, and aesthetic value
Glass-Based Materials	Advanced glazing systems (e.g., Low-E glass)	Maximize daylight while reducing heat transfer and energy consumption
Thermal Energy Storage Materials	Phase-change or heat-storage materials	Regulate indoor temperature and reduce heating/cooling demand
Recycled and Recyclable Materials	Materials produced from recycled content or designed for recyclability	Minimize waste, conserve natural resources, and support circular construction
Bioclimatic Materials	Climate-responsive materials selected according to local environmental conditions	Improve passive heating, cooling, ventilation, and occupant comfort
Living Walls and Green Roofs	Vegetation integrated into building façades and roofs	Enhance air quality, provide thermal insulation, mitigate urban heat, and improve aesthetics

Based on the review of previous studies and the analysis of commonly used materials in interior architecture, seven main material categories were identified, including brick, stone, concrete, wood, glass, metal, and plaster. These materials were selected as the primary material components for evaluating individuals' preferences in the private domain of residential spaces, as illustrated in Figure 2.

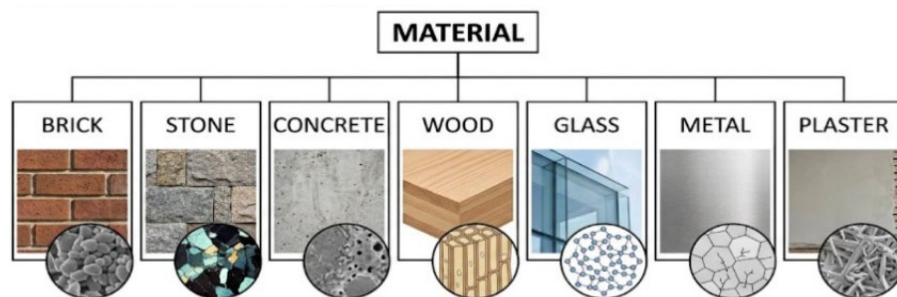


Figure 2. Identified material categories in interior architecture based on the literature review.

Literature review

Previous studies have investigated the influence of interior design elements, particularly material characteristics, together with users' personality traits on the quality and perception of

interior environments. Building upon these contributions, the present study seeks to expand the existing body of knowledge and address part of the remaining research gaps in this field. A growing body of literature has demonstrated that personality characteristics play a fundamental role in shaping preferences for interior architectural environments, leading researchers to shift from standardized design approaches toward personalized, evidence-based frameworks that integrate psychological characteristics with environmental design variables.

For example, Bolharova (2025) proposed a personalized architectural design framework based on the Big Five personality model through a comparative review of eight personality theories and the development of mapping tables linking personality traits with spatial organization, color, materials, and lighting. The findings indicated that personality-based design improves psychological comfort, well-being, productivity, and provides practical guidance for architects and designers. Similarly, Lara-Moreno et al. (2021) examined the emotional structure of personality in interior design by reviewing psychological theories of emotion and applying them to design elements such as form, color, lighting, and texture. Their results showed that these elements evoke distinct emotional responses and significantly influence users' psychological satisfaction. Likewise, Mahmoud and Salem (2022) reviewed eleven previous studies to evaluate whether personality could serve as a basis for interior design. Their findings suggested that interior spaces should reflect users' psychological characteristics rather than merely satisfy functional needs, supporting personality assessment as a valuable starting point for user-centered design. Using mixed reality (MR) technology, Lee and Kim (2025) investigated how personality and previous spatial experiences influence interior preferences. Personality was assessed using the RIASEC model, while users' experiences were analyzed through text mining and the PageRank algorithm. The study identified distinct material and color preferences among different personality types, demonstrating that both personality and prior experiences shape spatial perception. From an environmental psychology perspective, Gosling et al. (2005) introduced the concept of Personal Living Space (PLS) to examine the relationship between residential environments and occupants' personal characteristics. Their analysis showed that environmental features and personal belongings reflect personality, gender, and cultural identity. Likewise, Gosling et al. (2002) conducted experimental studies comparing observers' evaluations of bedrooms and offices with occupants' personality assessments. Their findings confirmed that personal environments contain reliable cues to personality, although social stereotypes may also influence observers' judgments. More recently, Dou et al. (2025) employed a virtual reality (VR) experiment involving 63 participants to examine the interaction between personality traits and interior color and spatial composition. Using subjective emotional evaluations, physiological measurements, and Linear Mixed Models (LMM), the study found that extraversion, neuroticism, and conscientiousness significantly moderate emotional responses to interior environments, supporting personality-based spatial customization. Finally, Augustin et al. (2009) synthesized

evidence from environmental psychology to establish principles of human-centered, evidence-based design. Their review demonstrated that environmental attributes including color, texture, spatial organization, cultural identity, and psychological characteristics—substantially influence perception, behavior, health, learning, and user satisfaction. Overall, previous studies consistently demonstrate that personality significantly influences users' perceptions, emotional responses, and preferences for interior environments. However, most existing research has focused on general personality frameworks, such as the Big Five or RIASEC, or on individual design variables. Comprehensive investigations examining multiple interior architectural components simultaneously in relation to personality typologies within residential environments remain limited. Addressing this gap can contribute to the development of more comprehensive, evidence-based, and user-centered interior design frameworks.

Materials and Methods

This study is applied in terms of its purpose and falls within the category of descriptive–analytical research with a correlational approach. In this framework, the independent variable is defined as individuals' personality types based on the Myers–Briggs Type Indicator (MBTI), while the dependent variables consist of material-related components in the interior architecture of private residential spaces. The theoretical framework of the study is grounded in environmental psychology and personality psychology, aiming to investigate the relationship between individuals' personality characteristics and their spatial perception, preferences, and selection patterns. The statistical population of this research consists of residents of one- and two-story villa houses located in District 6 of Shiraz, Iran. This area was selected as the research context due to its structural diversity in terms of physical characteristics and residential patterns. The selected district includes 7 urban zones, 492 urban blocks, and a total of 16,331 parcels. In addition to its physical and spatial diversity, the selection of this area was also influenced by practical considerations, including appropriate accessibility to residential units and the feasibility of field data collection. The required sample size was determined using Morgan's sampling table, resulting in 384 participants. Considering the total number of parcels within the study area (16,331 parcels), a spatially distributed sampling strategy was adopted to ensure adequate representation across the study area. Initially, the "Random within Subsets" function in QGIS software was employed to select spatially dispersed locations among the 492 urban blocks. Subsequently, using the random selection method, 130 residential units were selected. It was assumed that two to three residents from each selected unit would participate in completing the questionnaires. To ensure compliance with the research criteria, the selected residential units were evaluated using aerial imagery and spatial information platforms, including Google Maps and Shiraz ESUP, regarding building type and number of floors. Only one- and two-story villa houses were retained, while non-conforming cases were replaced with the nearest eligible

residential units. Finally, data collection was conducted through field surveys and questionnaire distribution among the residents of the selected units. The data collection instruments consisted of two main parts. The first part included the standardized Myers–Briggs Type Indicator (MBTI) questionnaire, consisting of 87 dichotomous questions used to identify participants' personality types. The second part consisted of researcher-developed visual preference images based on interior design renderings. These images were developed according to material-related components of interior architecture, including brick, metal, stone, wood, glass, concrete, plaster, and gypsum finishes, in order to examine participants' preferences regarding interior material selection. To evaluate the validity of the research instruments, both content validity and face validity were assessed through expert evaluation by professors and specialists in the fields of architecture and psychology. Following the experts' comments and necessary modifications, the final version of the instruments was prepared. The reliability of the instruments was assessed using Cronbach's alpha coefficient. The results indicated that the obtained alpha values were above the acceptable threshold of 0.70, confirming the satisfactory reliability of the measurement tools. The collected data were analyzed using SPSS software (version 27). Since the variables of the study were categorical and measured at nominal and ordinal levels, parametric statistical assumptions, including normality testing, were not applicable. Therefore, the Chi-square test was employed to examine the existence of significant associations between personality types and interior design preferences. Furthermore, Cramer's V coefficient was used to determine the strength of the relationships between variables. In addition, Correspondence Analysis was conducted to provide a deeper interpretation of the relationships between categorical variables and to identify the structural patterns among different categories.

Research Implementation

Process To conduct the research, a series of interior design scenarios for the bedroom space, considered as a private domain within residential environments, were initially developed based on the material-related components of interior architecture. The three-dimensional models were created using 3DS Max software (version 2025). Subsequently, visual outputs of the designed scenarios were generated using Lumion software (version 2025), and the final image processing was performed in Adobe Photoshop software (version 2025) to improve visual clarity and presentation quality. During the field study phase, participants first completed the MBTI questionnaire to determine their personality types. Subsequently, the designed interior scenarios were presented to them through visual images. In addition, a three-dimensional animation of the proposed spaces was provided through a Virtual Reality (VR) environment to facilitate a more accurate spatial perception and reduce potential biases caused by immediate decision-making based solely on static images. Finally, participants selected their preferred design options according to their spatial preferences.

The overall research methodology framework, illustrating the research design, data collection process, analytical methods, and implementation stages, is presented in Figure 3.

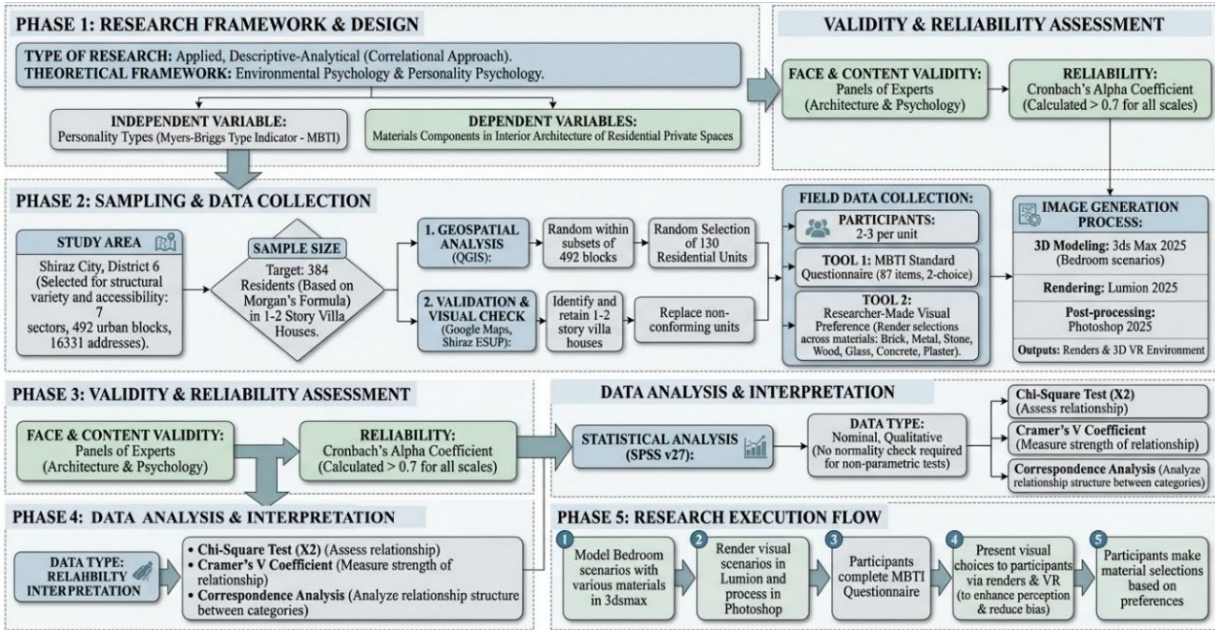
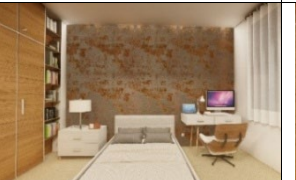
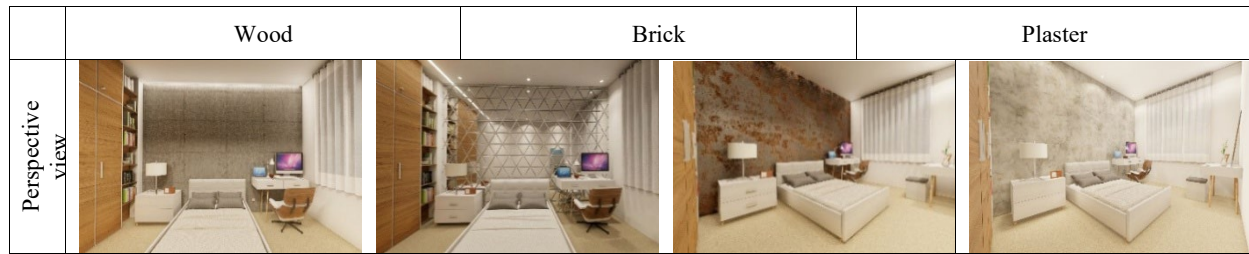


Figure 3. Comprehensive research methodology chart.

Table 4. Sample material renders.

	Wood		Brick		Plaster			
Front view								
Perspective view								
	Concrete		Glass		Metal		Stone	
Front view								



Results

This section presents the research findings regarding the distribution of personality types and the patterns of material preferences in relation to personality characteristics. Given the categorical nature of the study variables, Chi-square test and Cramer's V coefficient were applied to examine the relationships between variables. Furthermore, correspondence analysis was conducted to provide a visual interpretation of the associations among personality groups and design preferences. The frequency distribution of personality types is presented in Table 5 and Figure 4.

Table 5. Personality frequency distribution.

		Frequency	Percent	Cumulative Percent
Valid	Analyst	105	27.3	27.3
	Sentinel	189	49.2	76.6
	Diplomat	25	6.5	83.1
	Explorer	65	16.9	100.0
	Total	384	100.0	

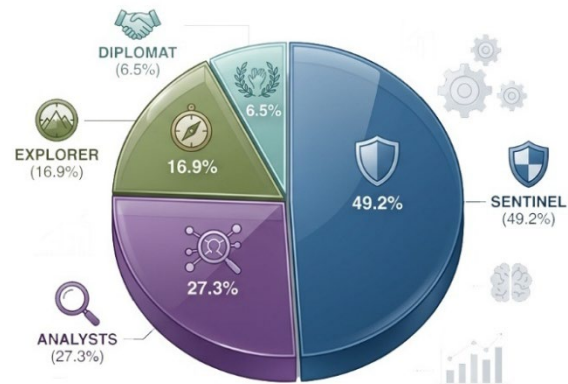
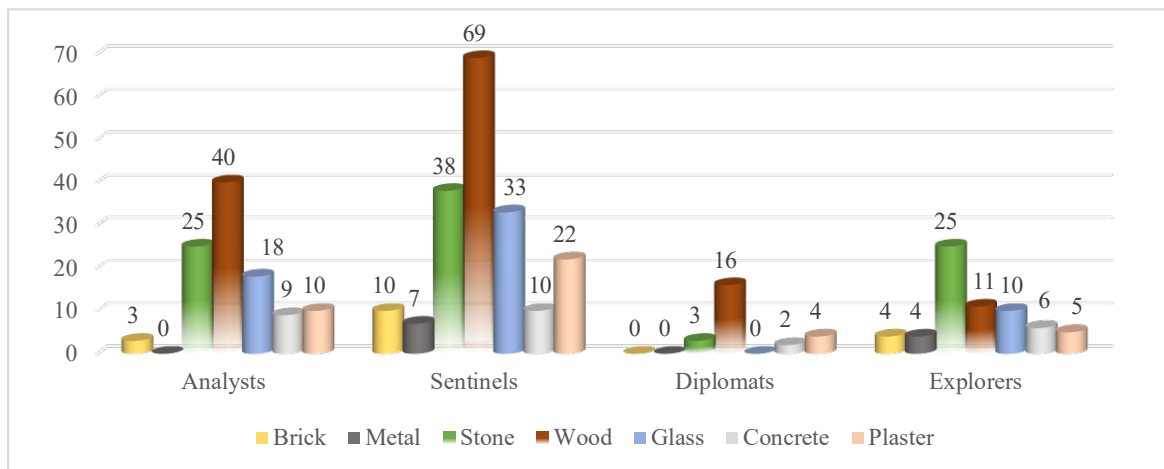


Figure 4. Distribution of participants across MBTI personality types (n=384).

Based on the classification of personality types and the material component, the materials examined in this study included brick, metal, stone, wood, glass, concrete, and plaster. The distribution of participants' material preferences across different personality types is presented in Table 6, while the corresponding visual representations are provided in Figures 5 and 6.

Table 6. Frequency and percentage distribution of material preferences by personality type.

Personality * Material Crosstabulation										
Personality			Material							
			Brick	Metal	Stone	Wood	Glass	Concrete	Plaster	Total
Analysts	Count		3	0	25	40	18	9	10	105
	Expected Count		4.6	3.0	24.9	37.2	16.7	7.4	11.2	105.0
	Percent		2.9%	0.0%	23.8%	38.1%	17.1%	8.6%	9.5%	100.0%
Sentinels	Count		10	7	38	69	33	10	22	189
	Expected Count		8.4	5.4	44.8	66.9	30.0	13.3	20.2	189.0
	Percent		5.3%	3.7%	20.1%	36.5%	17.5%	5.3%	11.6%	100.0%
	Count		0	0	3	16	0	2	4	25
	Expected Count		1.1	.7	5.9	8.9	4.0	1.8	2.7	25.0
	Percent		0.0%	0.0%	12.0%	64.0%	0.0%	8.0%	16.0%	100.0%
	Count		4	4	25	11	10	6	5	65
	Expected Count		2.9	1.9	15.4	23.0	10.3	4.6	6.9	65.0
	Percent		6.2%	6.2%	38.5%	16.9%	15.4%	9.2%	7.7%	100.0%
Total	Count		17	11	91	136	61	27	41	384
	Expected Count		17.0	11.0	91.0	136.0	61.0	27.0	41.0	384.0
	Percent		4.4%	2.9%	23.7%	35.4%	15.9%	7.0%	10.7%	100.0%

**Figure 5. Frequency distribution of material preferences by personality type.**

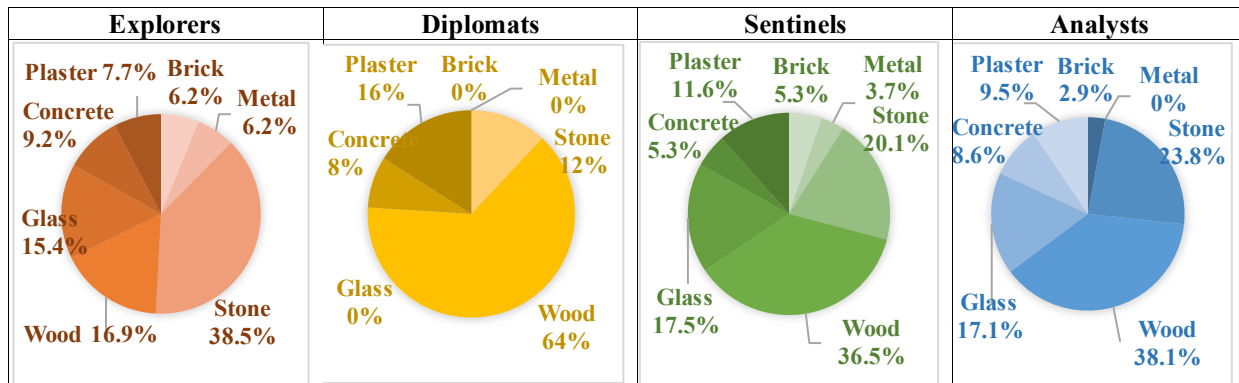


Figure 6. Percentage distribution of artificial lighting preferences across personality types.

Discussion

Chi-Square Analysis of the Relationship Between Personality Types and Material Preferences

The association between personality types and material preferences was examined using the Chi-square test, and the statistical results are reported in Table 7. The findings are subsequently analyzed and interpreted in detail.

Table 7. Chi-Square test results, personality types and material preferences.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.394a	18	0.005
Likelihood Ratio	45.340	18	<0.001
Linear-by-Linear Association	2.451	1	0.117
N of Valid Cases	384		

Chi-Square Analysis of Personality Types and Material Preferences

The chi-square analysis revealed a statistically significant association between personality types and material preferences in the investigated interior space ($\chi^2 = 37.394$, $df = 18$, $p = 0.005$). This finding indicates that preferences for interior materials are not uniformly distributed across personality groups but instead vary according to personality characteristics. The significance of the likelihood ratio statistic (Likelihood Ratio = 45.340, $df = 18$, $p < 0.001$) further supports the robustness of this relationship. In contrast, the Linear-by-Linear Association test was not statistically significant ($\chi^2 = 2.451$, $df = 1$, $p = 0.117$), suggesting that the relationship between personality type and material preference does not follow a simple linear pattern. Rather, the observed association appears to be multidimensional, reflecting the complexity of how personality traits influence users' perceptions and preferences for interior materials. Given the

adequate sample size ($n = 384$), these findings provide strong evidence that personality type is significantly associated with material preferences in interior design, supporting the generalizability of the results to the target population.

Cramer's V Analysis of the Association Between Personality Types and Material Preferences

The relationship between personality characteristics and material preferences is presented in Table 8, followed by a comprehensive interpretation and discussion of the results.

Table 8. Cramer's V Results, Personality Types and Material Preferences

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	0.312	0.005
	Cramer's V	0.180	0.005
N of Valid Cases		384	

Cramer's V Analysis of Personality Types and Material Preferences

The correlation analysis further confirms a statistically significant association between personality types and material preferences in interior design. The Phi coefficient ($r = 0.312$, $p \approx 0.005$) indicates a positive relationship of weak-to-moderate strength, suggesting that personality characteristics are associated with differences in material preferences. Similarly, Cramer's V ($V = 0.180$, $p \approx 0.005$) demonstrates a statistically significant, albeit relatively weak, association between the two variables. Although the magnitude of the relationship is not strong, the results consistently indicate that personality traits contribute to variations in individuals' material preferences. Considering the adequate sample size ($N = 384$), the observed association can be regarded as reliable and representative of the target population. These findings suggest that psychological characteristics should be considered as one of the factors influencing material selection in residential interior design. From a human-centered design perspective, they provide empirical support for incorporating personality-based user preferences into the material selection process to create interior environments that better align with occupants' psychological needs and spatial experience. To facilitate a clearer understanding of these relationships, the findings are also illustrated visually in Figure 7.

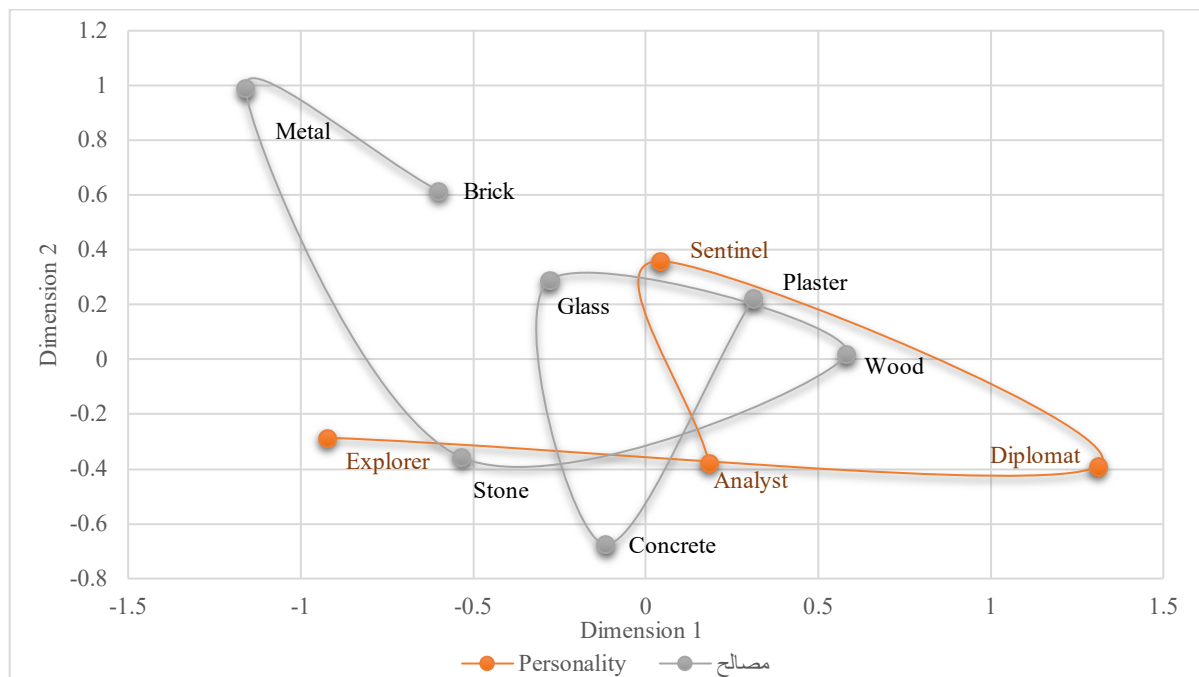


Figure 7. Correspondence analysis of personality types and material preferences.

The correspondence analysis revealed distinct associations between personality groups and material preferences, indicating that the proximity of materials to personality categories reflects meaningful psychological patterns in interior material selection.

Analysts were positioned closest to wood and stone. Wood, with its flexibility and complex fibrous structure, and stone, with its durability and structural order, represent materials that support engineering potential, structural reliability, and design innovation. These characteristics correspond with Analysts' abstract thinking, logical reasoning, strategic orientation, and preference for complex systems.

Sentinels showed the closest association with wood and glass. Wood reflects their preference for natural, durable, and well-established materials, consistent with their practical and tradition-oriented nature. Glass, characterized by transparency and visual clarity, aligns with their preference for structured, observable, and controllable environments that reinforce security and responsibility.

Diplomats were most closely associated with wood and plaster. The warmth, natural texture, and sense of authenticity provided by wood correspond with their empathetic, value-oriented, and relationship-focused personality. Plaster, due to its soft, formable nature and ability to create smooth and harmonious surfaces, supports calm, inviting, and emotionally balanced environments that reflect their imagination and strong intuition.

Explorers were primarily associated with stone and glass. Stone represents naturalness, strength, and authenticity, matching their adventurous, practical, and experience-oriented characteristics. Glass, through its transparency, light transmission, and visual openness, reflects their preference for innovation, modernity, and unrestricted interaction with the surrounding environment. Together, these materials illustrate Explorers' simultaneous attraction to authentic experiences and the exploration of new possibilities.

Conclusion

The findings of this study confirm the presence of an association between personality characteristics and material preferences in residential interior design. The results indicate that personality-based differences influence the way individuals perceive and prioritize interior materials, supporting the research hypothesis that psychological characteristics can be considered as an influential factor in human-centered interior design approaches. The identified patterns provide insights into how material selection can be aligned with users' psychological preferences to create more personalized and meaningful residential environments.

Among the four personality groups, Analysts demonstrated a dominant preference for wood, stone, and glass. This preference can be interpreted within the framework of their abstract thinking, logical analysis, and future-oriented cognition. Wood as their primary choice reflects their tendency toward materials that combine natural order and structural organization while providing a balance between creativity and mental calmness. Stone as the second preference corresponds with their strategic mindset, desire for stability, and interest in durable and rational structures. Their preference for glass as the third choice reflects their innovative thinking, interest in technology, spatial transparency, and attraction toward modern and future-oriented concepts.

For Diplomats, material preferences were associated with empathy, meaning-oriented thinking, and attention to human values. Their primary preference for wood indicates an inclination toward warm, intimate, and calming environments that enhance emotional connection and a sense of belonging. The selection of plaster as the second preference is related to their creative, flexible, and aesthetic-oriented characteristics, as this material enables soft, fluid, and artistic spatial expressions. Stone as the third preference can be interpreted as reflecting their desire for authenticity, meaning, and connection with nature, which corresponds with their value-driven and emotionally deep characteristics.

The material preferences of Guardians reflect characteristics such as organization, practicality, responsibility, and a tendency toward stability. Their first preference for wood represents their attraction to familiar, reliable, and durable materials that provide a sense of security and environmental consistency. The selection of stone as the second preference corresponds with their structured and rule-oriented nature, as well as their interest in strength and permanence. The

placement of glass as the third preference indicates a limited but controlled tendency toward visual clarity, order, and functional efficiency, while maintaining environmental stability and structure.

The material selection pattern among Explorers reflects their experiential, adventurous, flexible, and practical characteristics. Their primary preference for stone indicates an attraction toward materials with sensory qualities, tangible textures, and a direct connection with nature and physical experiences of space. Wood as the second preference corresponds with their spontaneous and free-oriented personality, supporting dynamic and informal environments while enhancing warmth and vitality. Their preference for glass as the third choice reflects their desire for diversity, spatial openness, stronger interaction with the surrounding environment, and direct experiences of light and visual perception within interior spaces.

Overall, these findings suggest that integrating personality characteristics into material selection strategies can contribute to more user-centered interior design processes. The results provide a framework for future residential design practices by emphasizing the role of psychological diversity in shaping material preferences and creating environments that better respond to occupants' individual experiences and needs. A summary of the overall results is presented in Figures 8 and 9.

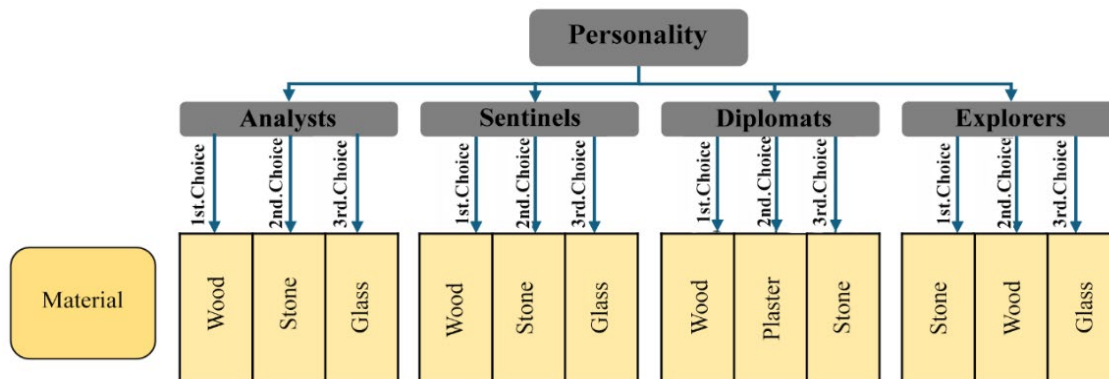


Figure 8. Material preference patterns across MBTI personality types.



Figure 9. Visual preferences among MBTI personality categories.

Author Contributions

Sh.K. contributed to the conceptualization, methodology, literature review, investigation, data collection, data curation, formal analysis, visualization, and writing original draft preparation of the manuscript. M.H. contributed to the validation, supervision, and review and editing of the manuscript. M.R. provided advisory support and contributed to the review and editing of the manuscript. All authors have read and agreed to the published version of the manuscript.

Acknowledgements

This article is derived from the Ph.D. thesis of Shayan Karimaghaee in Architecture at the Islamic Azad University, Bushehr Branch. Appreciation is extended to Dr. Maryam Haghpanah, the Ph.D. supervisor, and Dr. Mohammad Ali Rahimi, the Ph.D. advisor, for their valuable guidance, constructive feedback, and continuous support throughout the research process. Appreciation is also extended to the officials and experts of District 6 Municipality of Shiraz, the Electronic Municipality, and the Information and Communication Technology (ICT) Organization for providing the required data and information for this study. Finally, gratitude is expressed to all participants who devoted their time to completing the questionnaires and contributed to the successful completion of this research.

Ethical considerations

This study received ethical approval from the Research Ethics Committee of Bushehr University of Medical Sciences, following a request from the Islamic Azad University, Bushehr Branch (Ethics Approval Code: IR.BPUMS.REC.1404.045). Prior to participation, all

respondents provided verbal informed consent after being informed about the purpose of the study and the voluntary nature of their participation. Participants were assured that their responses would remain anonymous and confidential, and they were free to withdraw from the study at any stage without any consequences. As this research involved only a questionnaire survey and did not include any medical intervention or biological sample collection, no additional clinical ethical procedures were required. The authors avoided data fabrication, data falsification, plagiarism, and scientific misconduct throughout the research and publication process.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

The authors declare no conflict of interest. In addition, the funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results”.

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