

Research Paper

Factors Affecting the Promotion of Sense of Place in New Urban Developments of Yazd City

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Abstract

As one of the pivotal qualitative attributes inherent in urban neighborhoods, the sense of place functions as a crucial link between individuals and spatial settings, endowing locales with distinctive personality and identity. The incorporation of this concept into the framework of new urban developments, devoid of historical precedents, necessitates careful consideration of multifaceted factors, including but not limited to identity, vitality, memorability, sense of belonging, and place attachment. Regrettably, contemporary oversight in the conscientious establishment and cultivation of urban spaces, founded upon the principles of "sense of place" and "place attachment," coupled with a disregard for historical continuities, has given rise to adverse consequences. These consequences encompass the erosion of identity, diminishing residents' sense of connection to their surroundings, diminished social interactions, and a proliferation of various social detriments. This present study endeavors to delve into the nuanced concept of the sense of place within newly developed urban environments. Specifically, it seeks to discern the factors influencing the genesis and enhancement of this phenomenon within such contexts through an exhaustive examination of three site and services areas situated in the city of Yazd, Iran. Employing a correlational research design, the study leverages statistical tools such as the Kolmogorov–Smirnov test, Pearson Correlation tests, and stepwise regression analyses to elucidate the intensity and directionality of relationships between dependent and independent variables. The findings of this investigation reveal that temporal considerations, the sense of belonging, the personal dependence of residents, and identity emerge as paramount variables exhibiting the highest correlation with the advancement of the sense of place in novel urban developments.

Keywords: Sense of place, New urban developments, Site and services projects, Yazd city.

1. INTRODUCTION

This study undertakes an assessment of the concept of place, emphasizing its pivotal role in cultivating the sense of place. The primary focus centers on an in-depth examination of the concept of the sense of place, its dimensions, and associated indices within the framework of emerging residential developments in the city of Yazd, situated in central Iran. Despite Yazd boasting a wealth of exemplary instances of unique places within its historical tapestry and witnessing the emergence of numerous contemporary and innovative urban developments, the integration of the sense of

place into these contexts remains an unrealized potential.

The current investigation advocates for the adoption of the "sense of place" concept as a framework for delineating distinctive dominant characteristics within new residential environments in Yazd. The sense of place in residential settings, predominantly shaped by the residents and forged at the inter-subjective level, establishes a nexus between the behaviors of individuals and other inhabitants. Consequently, the sense of place in residential environments becomes susceptible to influence through the recognition of its physical attributes as

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well as the emotions, behaviors, and interactions of its residents.

Furthermore, it can be demonstrated that the sense of place within residential neighborhoods is intricately influenced by the recognition of diverse elements, including physical forms, residents' emotions, behaviors, interactions, and the perception of events. The confluence of conative, emotional, and cognitive facets in individuals' connection with their environment establishes a profound bond, leading those with a heightened sense of place to exhibit reluctance to relocate. This connection is deeply interwoven with both the physical attributes of a setting and the communal social interactions occurring within it.

To comprehensively explore the sense of place, the present study adopts a three-dimensional approach, encompassing the physical, functional, and semantic dimensions of the researched locations. The primary objective of this research is to advance our understanding of the sense of place within the realm of new urban developments and site-and-services areas. This is achieved through a comparative analysis, scrutinizing residents' perspectives and attitudes within the precincts of three specific site-and-services areas: Imamshahr-6th district, Silu, and Kowsar Safaiyeh in Yazd.

In addition to delineating the sense of place and evaluating the quality of spaces in new urban developments, the study seeks to identify influential factors in the formation and enhancement of the sense of place. Furthermore, the research aims to analyze the explanatory accuracy of the factors and elements contributing to the sense of place within the studied areas.

2. THE SENSE OF PLACE

A dimension of place is shaped through an individual's interactions with physical settings, individual and group activities, and sensory experiences (Najafi & Shariff, 2011). Places hold a significant role in the cultivation and preservation of both individual and group identities (Davenport & Anderson, 2005). The definition of places is characterized by three interrelated elements: the physical environment, an individual's internal mental and social processes, and the activities carried out in a given location (Canter, 1977; Relph, 1976; Smaldone, Harris, & Sanyal, 2005; Stedman, 2003).

Moreover, places are commonly perceived as spaces imbued with historical and traditional identities, often neglecting the impact of socio-cultural, political, and economic changes occurring "outside" of these spaces (Groth & Bressi, 1997;

Massey, Allen, & Sarre, 1999; Yaeger, 1996). Individuals' experiences within a place contribute to their recognition of senses and identities (Harvey, 2001). Consequently, places are not mere abstractions but are regarded as the directly experienced events of the world. In an individual's personal encounter with a place, the physical, functional, and semantic elements of that location intertwine to shape and nurture identity and a sense of place (Shamsuddin & Ujang, 2008). Places play a pivotal role in establishing and fostering the individual and collective identities of people. Over the past few decades, there has been a notable increase in studies exploring how inhabitants connect themselves to their residences.

In the context of the "sense of place" concept, the term "place" extends beyond its geographical location (Wilson, 1997) to encompass various elements and factors that contribute to the distinct characteristics of that location (Lutts, 1985). The features and components of an urban area that play a role in the formation and enhancement of its sense of place necessitate opportunities for analysis and modification. Presently, the sense of place has become a foundational element in urban development plans and projects, with environmental studies reflecting a growing interest in this concept. Indeed, the sense of place serves as a focal point in several environmental learning theories (Thomashow, 2001).

This concept is employed differently in geographical, sociological, educational, and humanistic contexts to facilitate connections between people and their surroundings (Feld & Basso, 1996; Kincheloe, McKinley, Lim, & Barton, 2006; Semken & Freeman, 2008; Williams & Stewart, 1998). The sense of place, with its multifaceted theoretical aspects, is intricate and subject to debate (Bingley et al., 2014). It serves as both a conceptual and empirical tool for analyzing individuals' emotional, cognitive, intangible, and cultural ties to a particular location (Relph, 1997). Moreover, the widely embraced "sense of place" concept is frequently employed by scholars to underscore the significance of places, given that places are revealed to be at the core of personal emotions (Rose, 1995). This concept is commonly recognized as a set of subjective emotions tied to the national character, general traditional or contemporary sociocultural identities of a place (Swilling, Sebitosi, & Loots, 2012).

The experience of a space often gives rise to a sense of place within it (Bell et al., 2016). As each place holds geographic significance for its residents, they form relationships, gain awareness, and cultivate shared experiences, senses, and images. Consequently, individuals develop emotional or symbolic dependencies on these places, fostering a

sense of place (Mohapatra, 2016). Therefore, the sense of place is a comprehensive concept that signifies individuals' awareness and interpretation of a physical location with which they interact, be it in the short or long term, imbuing that location with special meaning (Niemelä et al., 2011; Galliano & Loeffler, 1999).

In accordance with Liu (2009), the historical significance of places manifests in contemporary daily lives, carrying crucial cultural meanings (Swilling et al., 2012). Studies on the sense of place typically aim to enhance our understanding of individuals' sentiments and attachment to their environment, encompassing aspects like satisfaction with their residence or concern for environmental degradation (Kaltenborn, 1998). Urban environments and public spaces lacking a sense of place are often referred to as placeless places. Hummon suggests that the sense of place possesses a dual nature involving both the interpretation of the environment and the mental reaction to it (Hummon, 1992). Jackson posits that the contemporary use of the sense of place conveys the atmosphere of a place, its environmental quality, and perhaps its ability to attract by generating a specific sense of well-being that entices people to return to that place (Jackson, 1994).

Contemporary researchers emphasize that the primary objective of urban design is to create a sense of place. Consequently, designers, planners, and architects are urged to prioritize the quality of urban areas and locations (Najafi & Shariff, 2011).

3. RESEARCH METHODS

In this research, the qualitative variable of the "sense of place" serves as the dependent variable, while the independent variables encompass the components of natural elements and environmental comfort, spatial qualities, accessibility and permeability, functions, furniture and equipment, identity, legibility, beauty and symbol, social interactions, time, affiliation, and attachment. These independent variables are thoroughly evaluated and analyzed through pertinent indicators. The dimensions, components, and indicators studied in this research are presented in the following table, aligning with theoretical foundations and the concept-indicator model (Table 1).

4. THE STUDY AREAS

This study, conducted in the central Iranian city of Yazd, specifically focuses on the historical urban fabric of Yazd City (Montazerolhodjah, Sharifnejad & Montazerolhodjah, 2019). Over the past four decades,

the legal boundaries of Yazd have undergone considerable expansion, encompassing a vast expanse of land today. Examining the historical map of Yazd City prior to the Islamic revolution reveals that the city originally occupied a comparatively smaller area.

The notable expansion of Yazd City is closely tied to local area development plans and the transfer of land through planned developments. This expansion occurred primarily through two major development patterns. The first pattern, initiated in the 1970s, resulted in the creation of suburban and new contexts. This development pattern, though not entirely consistent, gave rise to districts such as Azadshahr and Safaiyeh. These districts, emerging as two distinct urban centers in different corners of the city, facilitated the division and distribution of land between the new centers and the established city. Notably, Azadshahr and Safaiyeh are situated outside the formal boundaries of the inner city, representing new urban centers that set the direction for the city's physical growth and development. The second development pattern, characterized by government-backed urban development, commenced with land transfers by the government post the Revolution.

Imamshahr, established at the outset of this period, stands out as a district devoid of land use or land transfer plans, and it lacked a structured, planned framework. Despite the absence of such planning, land transfers in Yazd during this period did not align adequately with the demands for land. Consequently, this urban development pattern led to the abandonment of numerous parcels of land and an upswing in land speculation within Yazd.

Notably, the urban land use per capita in this development pattern was determined under favorable conditions. However, the land use per capita in site and services plans did not reach an optimum level due to the delayed initiation of the construction phase. This particular urban development pattern encompassed approximately 30 local area planning projects. Additionally, the establishment of residential districts by the government beyond the legal boundaries of the city is a component of this pattern, characterized by the government as an informal method of settlement-building. Presently, the proliferation of settlements in the University district serves as one of the most prevalent examples of this development pattern.

Aligned with the objectives of this research, our focus has been on the selection and evaluation of the aesthetic conditions within site and services areas developed during the specified period. Key criteria for the selection of these areas encompassed the design and implementation timelines of the plan, the surface area it covered, and its geographical location. Consequently, three distinct site and services areas in

Yazd were chosen for evaluation, each representative of a particular period: Imamshahr 6th district (1980s), Siloo (early 1990s), and Kowsar-Safaiyeh (late

1990s). The geographical coordinates for each of these areas are delineated in Figure 1.

Table 1. The analytical model of the research based on the concept-indicator model

Concept	Dimensions	Components	Indicators
Sense of Place	Physical	Natural Elements & Environmental Comfort	Natural elements
			Climatic comfort
		Spatial Qualities	Contrast and visual diversity
			Presence of physical realm and boundary
			Human scale
			The diverse and desirable visual landscape
			Entrances defining
		Accessibility and Permeability	Accessibility
			Route quality
		Furniture and Utilities	Urban furniture and equipment
	Diversity and attractiveness in urban furniture		
	Appropriate lighting		
	Semantic	Identity	Using native styles in the architecture of buildings
			Identity-related and distinctive elements
			Symbolic concepts in the appearance
			Symbolic concepts in the function
			Space memorability
		Legibility	Space identifiability
			Ease of addressing for the space
			Understanding the supplied forms and functions
Utilization of native elements, symbols, and landmarks			
Beauty and order of space			
Time	Duration of stay in the neighborhood		
	Duration of presence in the public spaces		
	Rate of people's presence in space		
	Possibility of social activities		
	Security		
Functional	Social Interactions	Inclination to participation	
		Diversity of the functions	
		The occurrence of various events	
	Land Use & Activities	Capability for the presence of all types of people	
		The feeling of place attachment	
Attachment & Belonging	Feeling uncomfortable in case of moving from the place		
	Proud of the fame and distinctiveness of the place		

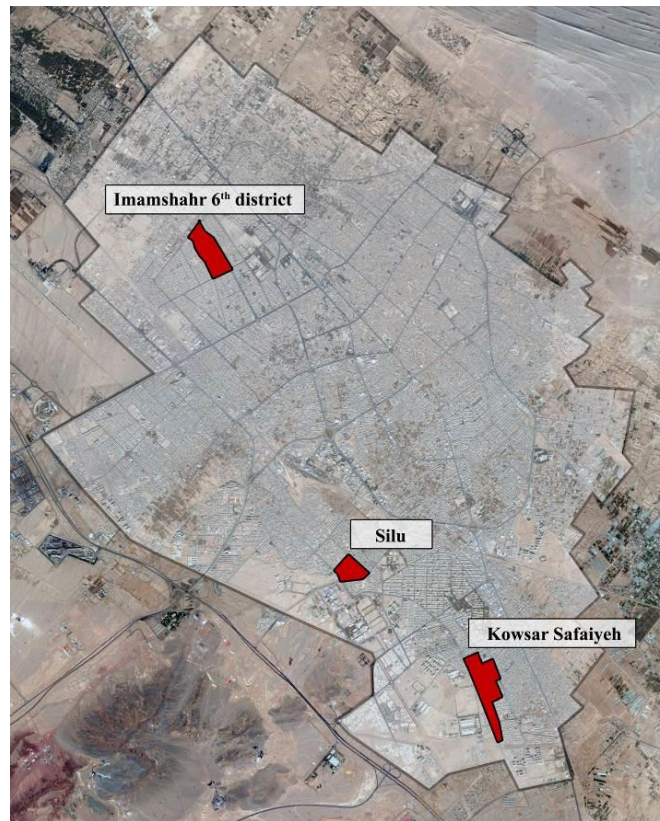


Fig 1. The Location of the studied areas



Fig 2. Case study No. 1: Imamshahr 6th district



Fig 3. Case study No. 2: Silu



Fig 4. Case Study No. 3: Kowsar Safaiyeh

5. Results

This research was designed as an applied study with a specific purpose in mind. The correlational research method was employed to assess the factors influencing the sense of place. To this end, the Kolmogorov–Smirnov statistical test was used to determine the normal distribution of the research data. Multiple regression and Pearson correlation tests were then applied to ascertain the strength and direction of the relationship between the independent and dependent variables. Data collection and analysis were conducted through documentary studies and the library research method. A questionnaire, along with SPSS software, was utilized for statistical tests and data analysis.

The statistical population for this study comprised 640 households in the site and services area of Imamshahr 6th district, 220 households in the site and services area of Silu, and 380 households in the site and services area of Kowsar Safaiyeh. The sample size was determined using the Cochran formula (with $d=0.1$ degree of precision, 95% confidence level, and $p=q=0.5$). Taking into account potential questionnaire loss and the need for uniform conditions in calculating the scores of the sense of place among the samples, the sample size for each of the three areas was set at 100, resulting in a total sample size of 300. Specifically, the sample sizes for the three areas were determined as 84, 67, and 77, respectively.

A questionnaire, featuring questions designed on a five-point Likert scale, was employed to evaluate the indices. In alignment with the dimensions, components of the sense of place, and introduced indicators, a total of 40 questions were formulated. The systematic sampling method was utilized for both the completion of the questionnaires and the overall sampling process.

To ensure the face validity of the questionnaire, it was reviewed and verified by professors from the Department of Urban Planning at Yazd University.

The reliability of the questionnaire was confirmed using the Cronbach's alpha test. The calculated Cronbach's alpha coefficients were 0.87 for the site and services area of Imamshahr 6th district, 0.78 for the site and services area of Silu, and 0.87 for the site and services area of Kowsar Safaiyeh. These coefficients indicate a high internal correlation within each of these areas, suggesting that the research tools exhibit acceptable reliability.

5.1. Normality Test

To assess the correlation of variables, given the quantitative nature of the data and the use of an interval scale, the Kolmogorov-Smirnov test was employed to determine the normality of the data distribution (Khaki, 1999). According to the measurements, the significance level (Asymp. Sig. (2-tailed)) for all three areas was found to be lower than 0.05. Consequently, the distributions, with a confidence level exceeding 95%, were deemed to be normal. Therefore, considering the normal distribution of the data in all three areas and the utilization of a five-point Likert scale, multiple linear regression techniques and the Pearson correlation test were applied to examine the strength and direction of the relationship between the dependent and independent variables.

5.2. Correlation coefficients

The goodness-of-fit statistics for the model, comprising the correlation coefficient, coefficient of determination, adjusted coefficient of determination, and standard deviation for all three areas, have been presented in Table 3. Examining the calculated correlation coefficient (R) for the site and services area of Imamshahr 6th district (0.845), the site and services area of Silu (0.762), and the site and services area of Kowsar Safaiyeh (0.741), it is evident that a strong correlation exists between the independent and

dependent variables. This strong correlation indicates that the dependent variable can be predictably explained using these variables, eliminating the need to increase the number of independent variables.

The coefficient of determination, denoted as R-square, represents the square of the correlation coefficient and signifies the extent to which variance in the dependent variable is explained by the independent variables. R-square values range from 0 to 1, with higher values indicating that independent variables explain a greater portion of the dependent variable's variance. When independent variables contribute significantly to explaining variance, this value approaches 1; conversely, when the independent variables have minimal impact on explaining variance, the value approaches 0. The calculated coefficients of determination are 0.714 for the site and services area of Imamshahr 6th district, 0.580 for the site and services area of Silu, and 0.549 for the site and services area of Kowsar Safaiyeh. These values suggest that the independent variables effectively explain the variance in the dependent variable. Additionally, the adjusted R-Square or the adjusted coefficient of determination indicates that the 11 components of this model are influential in enhancing the sense of place.

The analysis of variance and F-statistic were employed to assess the significance of the model. As indicated in Table 4, the significance level of the analysis of variance is below 0.05 for all three models, indicating that the F-value is significant. In this context, it can be inferred that the independent variables are linearly independent of the dependent variable.

Table 5 presents the effects of the regression coefficients of the independent variables on the dependent variable of the sense of place. The calculated values indicate that all the independent variables have a direct and significant relationship with the dependent variable of the sense of place. Notably, the highest regression coefficient for the site and services areas of Imamshahr 6th district, Silu, and Kowsar Safaiyeh is associated with the time variable, with beta coefficients of 0.653, 0.664, and 0.612, respectively. This signifies that the most influential factor impacting the sense of place in the site and services areas is the duration of residence, and an increase in the duration of residence may lead to a substantial enhancement of the sense of place in these areas.

Examining the calculated regression coefficients, the other independent variables (in order of the intensity of the significant relationship) are as follows: affiliation and attachment, identity, legibility, functions, accessibility and permeability, beauty, social interactions, spatial qualities, furniture and equipment, natural elements and environmental comfort. The numerical interpretation of the regression coefficients indicates that an increase and a change in the units of the independent variables will result in an increase in the beta rate of the dependent variable. For instance, a one-unit increase in the "legibility" variable will elevate the sense of place by 0.553 units in the site and services area of Imamshahr 6th district.

Table 2. The Summary of the Model Fitting Statistics in the Studied Areas

Area	R	R Square	Adjusted R Square	Std. Error
Imamshahr 6 th district	0.845 ^a	0.714	0.682	0.01547
Silu	0.762 ^a	0.580	0.541	0.02531
Kowsar Safaiyeh	0.741 ^a	0.549	0.506	0.03842

Table 3. The Summary of the Analysis of the variance of the regression model Statistics in the Studied Areas

Area		Sum of Squares	df	Mean Square	F	Sig.
Imamshahr 6 th district	Regression	18.247	10	1.825	70.124	.001 ^a
	Residual	1.652	49	0.033		
	Total	19.899	59			
Silu	Regression	14.365	10	1.436	46.821	.000 ^a
	Residual	2.542	49	0.052		
	Total	16.907	59			
Kowsar Safaiyeh	Regression	11.326	10	1.133	66.749	.002 ^a
	Residual	1.965	49	0.040		
	Total	13.291	59			

6. DISCUSSION AND CONCLUSION

In light of the conducted calculations and the results obtained from the present research, all assumptions of the proposed model regarding the effects of the 11 introduced variables on promoting the sense of place in the site and services areas were confirmed. The summarized findings are presented in the following table.

Promoting the sense of place establishes a connection and bond between inhabitants and their habitat, imparting a distinctive and memorable character to the local community. Enhancing the quality of the sense of place contributes to an elevated sense of belonging among residents. The concept of the sense of place holds particular significance in site and services areas and newly developed towns and settlements, as these locations not only lack historical backgrounds and identity but also exhibit diverse demographic structures, cultural compositions, and ethnicities.

As illustrated in the above table, this research initially proposed a model to examine and evaluate the effective factors in promoting the sense of place. Subsequently, it analyzed and verified the 11 introduced hypotheses in three newly developed areas (site and services areas). According to Canter's perspective, an urban environment comprises three interconnected dimensions: body, activity, and perception. The perceptions of individuals and groups in a place stem from the structural interaction of these three systems. Enriching these systems in a coherent manner can deepen the relationship and bond between residents and the place, resulting in an increase in both the sense of place and the sense of belonging.

The research findings highlight that "time" (the duration of residence) emerges as the most crucial factor in promoting the sense of place in site and services areas. The highest correlation is observed between time and the promotion of the sense of place in the site and services areas of Imamshahr 6th district (Beta=0.653), Silu (Beta=0.664), and Kowsar Safaiyeh (Beta=0.612). Essentially, an increase in the duration of residence in these areas leads to an enhanced sense of place.

The present study also highlighted that residents' affiliation and personal attachment to their residence constitute the second most influential factor in promoting the sense of place. These factors are inherent to the inhabitants and are deeply rooted in their culture. Individuals vary in their inherent

environmental dependence, and such variations contribute significantly to the promotion of the sense of place.

Examining the regression equations in this research, the "identity" variable, with an estimated beta value of approximately 0.55 for all three areas, emerges as the third crucial factor in promoting the sense of place in site and services areas. Attending to the existing identity elements and components in the external environment, aligned with the historical development of each residence, is of utmost importance in designing and planning these areas. Essentially, the study suggests that in contemporary urban design projects, wherein creating and promoting the sense of place stands as one of the most significant design goals, focusing on the content and constituent parts such as functions, symbols and signs, spatial qualities, activities and behaviors, cultural values, traditional and indigenous patterns, and the mutual relationship between these two primary factors, takes precedence over the physical form itself.

Furthermore, based on the results obtained from the stepwise regression analysis and other effective variables (as per the above table), the following strategies are recommended to enhance the sense of place in newly built places and site and services areas:

Implementing a platform for organizing diverse events, incorporating natural elements in physical structure design, evaluating thermal comfort, clearly defining physical boundaries, adopting a human-scale approach in designs, creating a visually appealing landscape, designing welcoming entrances, emphasizing beauty and order in spatial layout, diversifying functions and events, enhancing inclusive space planning, facilitating social activities, planning an attractive layout for furniture and urban equipment, ensuring proper night lighting, incorporating symbolic concepts and signs, introducing distinguished elements, prioritizing accessibility in design, considering the ease of addressing, and ensuring the understandability of forms and functions are recommended strategies to enhance the sense of place in newly developed areas and site and services locations.

Table 5. The Regression Effect Coefficients of Independent Variables on the Dependent Variable in the Studied Areas

Model	Imamshahr 6th district					Silu					Kowsar Safaiyeh				
	Unstandardized Coefficients		standardized Coefficients	t	Sig.	Unstandardized Coefficients		standardized Coefficients	t	Sig.	Unstandardized Coefficients		standardized Coefficients	t	Sig.
	B	Std. Error	Beta			B	Std. Error	Beta			B	Std. Error	Beta		
(Constant)	3.223	0.122	-	4.652	.000	7.361	0.023	-	6.904	.002	2.652	0.034	-	6.547	.000
Natural Elements & Environmental Comfort	0.411	0.306	0.298	1.421	.001	0.386	0.023	0.274	0.968	.000	0.378	0.248	0.273	3.632	.001
Spatial Qualities	0.486	0.412	0.380	2.536	.000	0.475	0.136	0.363	6.568	.001	0.453	0.025	0.347	0.569	.000
Accessibility and Permeability	0.573	0.396	0.463	3.542	.003	0.532	0.036	0.426	1.423	.000	0.583	0.036	0.476	8.453	.000
Furniture and Utilities	0.421	0.236	0.306	2.526	.000	0.446	0.153	0.339	2.986	.000	0.452	0.148	0.346	2.125	.000
Identity	0.685	0.032	0.562	1.984	.001	0.603	0.036	0.553	1.236	.000	0.648	0.097	0.544	0.362	.000
Legibility	0.635	0.123	0.553	0.548	.000	0.623	0.214	0.568	6.563	.003	0.639	0.034	0.561	3.459	.000
Aesthetic	0.552	0.463	0.448	2.564	.000	0.609	0.365	0.493	0.851	.000	0.569	0.025	0.454	0.632	.001
Time	0.814	0.036	0.653	7.653	.002	0.853	0.063	0.664	1.456	.000	0.786	0.149	0.612	0.367	.000
Social Interactions	0.523	0.054	0.412	2.456	.001	0.514	0.048	0.396	3.421	.002	0.527	0.152	0.418	3.421	.000
Land Use & Activities	0.616	0.436	0.503	1.456	.000	0.586	0.149	0.593	0.632	.000	0.643	0.036	0.549	5.698	.000
Attachment & Belonging	0.736	0.036	0.631	1.698	.000	0.711	0.065	0.596	2.469	.000	0.701	0.086	0.593	2.429	.001

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