

# Traditional Neighborhoods Development (TND) Based on Structural Priorities of Tabriz School of Urban Planning\*

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## ABSTRACT

The Traditional Neighborhoods Development (TND) model should solidify social bonds and solidarity and, consequently social stability to help meet residents' living needs. Serving as one of the original Iranian-Islamic Schools, the Tabriz School of Urban Planning (with Tabriz as a city with a historical role and continuity) has left works of civilization that may serve as a local model for traditional neighborhood development. This model is characterized by proportions, human scales, physical development, and an evolving set of various components and mixed-use features. The goal of the present study was to revisit the Traditional Neighborhoods Development (TND) model based on Iran's local urban planning school structures, and definitely the Tabriz School of Urban Planning principles. In keeping with its objectives, this study aimed to expand the Tabriz School of Urban Planning in developing traditional neighborhoods, on the one hand, and to present a local model for urban neighborhood development, on the other hand. The present study used quantitative research from an analytical point of view and employed linear regression. This study also fell under the exploratory sequential mixed research with a tool-making design. Findings showed that the Tabriz School of Urban Planning in Traditional Neighborhoods Development (TND) involves an apparent and a hidden feature, with the former being characterized by physical and fabric aspects, and the latter by perceptual concepts. Dimensions of this development [model] may be described based on four physical, activity/functional, social-cultural, and environmental categories. Regression findings exhibited a coefficient of multiple correlation of 0.815 and an adjusted coefficient of determination of 0.815, suggesting that 81.4% of traditional neighborhoods development changes can be predicted by the principles derived from Tabriz School of Urban Planning.

**Keywords:** Traditional Neighborhoods Development (TND), Iranian Urban Planning, Tabriz School of Urban Planning, Ilkhanid Era, Safavid Era.

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## 1. INTRODUCTION

The specific nature of old urban textures should be examined by focusing on their economic, cultural, social, and physical features (Habibi et al. 2013, 8). The changing factors influencing urban development over the past years have turned urban neighborhoods into the first urban structure units that significantly contribute to city formations (Latifi and Saremi 2020, 88). Urban neighborhoods, particularly historical textures, have a critical role in promoting city identity and transferring this identity into peripheral neighborhoods (Boussaa 2017, 1). Today, urban managers, planners, and designers are increasingly focusing on developing traditional neighborhoods. In this connection, the Traditional Neighborhoods Development approach is seen as a response to improving the already-degrading urban quality of life, which requires intervention for planning and execution. This approach is an integrated form of policy-making and execution that relies on coordinated measures with public participation, helping to generate ideas and approaches to empower urban neighborhoods (Hanachi 2007, 15). Traditional neighborhoods development objectives influence urban fabric, characteristics, and quality of its elements while promoting environmental, social, and economic features (Mofidi 2013, 1). The rampant use of foreign models to develop urban neighborhoods will not only engender adverse impacts on identity dimensions and eliminate cultural richness and local values but also hinder the urban physical and functional features, thereby causing cities not to meet residents' lifestyles. For this, local schools of urban planning should be tailored to residents' modern needs. The main question that is posed is: "Which components of the Tabriz School of Urban Planning, if employed in developing traditional neighborhoods, would most influence communities in line with modern requirements?"

help create economic, physical, and social harmony in urban neighborhoods (Davidson 2004, 317). Traditional neighborhoods development models apply existing capacities in dilapidated textures to halt the qualitative degradation of economic, physical, social, and environmental dimensions in neighborhoods and to restore social life and economic prosperity. Past urban planning approaches suggest that urban neighborhoods were not simply places for settlement; rather they served as social and cultural institutions to play economic roles in cities (Hanachi 200, 28). On the other hand, the introduction of modernism and the employment of foreign models, albeit incompletely, as well as the failure to provide local domestic neighborhood development models as appropriate alternatives, have compounded the already-worsening urban development designs. This deteriorated the transforming physical, functional, and semantic systems dominating over neighborhoods, causing them not to play their effective roles in urban structures while generating urban crises as they simply became places for settling citizens. Given the fading identity of traditional neighborhoods in cities and the successful experiences of TND in developing neighborhoods, planners are working to create a better living environment and move toward sustainable development in the future. The TND approach helps qualitatively and quantitatively promote the neighborhood's fabric to increase the interactions between residents while enhancing social stability and economic bonds (Duanny and Zyberk 2010, 96). In this connection, it is crucial to present an alternative model to urban traditional neighborhood development in keeping with local principles, which would meet the modern needs of citizens in the city. For this, it would be critical to refer to Iran's urban planning schools by considering modern requirements based on modern needs and functions.

## 2. THEORETICAL FOUNDATIONS

### 2.1. Traditional Neighborhoods Development Model

The Traditional Neighborhoods Development (TND) model involves crucial and effective principles that

**Table 1: Traditional Neighborhoods Development Principles**

Principles	Description
Walkability/Pedestrian Zones	The key principle is to focus on pedestrian movement in the existing textures and make urban passageways walkable. It is maintained that squares and streets should be safe and attractive places for walking, i.e., they should be so designed to help residents feel comfortable and encourage them to walk more.
Connectivity and Integrity	Focus on the hierarchy of access to urban functions and streets, permeability, the integrity of passageway networks and define alleys and streets for walking and reducing traffic jams

Principles	Description
Mixed Land Uses	Using mixed and diverse land uses as well as working and living spaces; mixed uses can be defined in a block of apartment, on the street, in a neighborhood, an apartment, and in a place with diverse cultures, levels of income, and races. Mixed uses may generate security, reduce daily trips, activate textures, increase social interactions, and finally reduce traffic jams and avert urban horizontal growth.
Texture Density	This principle helps use land optimally in the existing urban textures. Increased density links services and shops together and reduces distances while avoiding urban horizontal development. This principle also generates a compressed social environment conducive to citizens' walking and living.
Strengthening and Preserving Traditional Structures	This principle helps identify textural structures, takes measures to promote public domains, and open spaces, and maintains the center and the periphery by strengthening them within the city.
Improving Design and Architectural Quality	TND is primarily focused on comfort and aesthetics, generating a sense of place, human-scale architecture, and feeding the human spirit with a charming environment while maintaining the historical value of public buildings in the texture. This approach also seeks to renovate buildings to revitalize and preserve urban scenery to make life continue in the community.
Strengthening Open and Public Spaces	Open and public spaces such as green spaces and parks help create attractive spaces and a major concept of urban spaces. If strengthened, these spaces, such as public buildings, pedestrian zones, and squares, could serve as places for people's social contacts and meetings to generate vibrant and dynamic spaces in the community.
Residence Diversity	Meeting various income groups' needs for housing and increasing their ability to own houses
Walking Capability	Designing neighborhoods based on pedestrian zones and using components that would encourage walking
Diverse Transportation	Empowering residents to enjoy a wide range of services such as transportation, including pedestrian zones, riding areas, and public transportation
Design Tools for Neighborhood Security	According to neo-urbanism advocates, a space should be so designed to provide security for its buildings as optimal designs could positively affect neighborhood security.

(Derived from CNU and HUD 2010; Arendt 2010)

## 2.2. Successful Foreign Examples

Designed by Duany Plater-Zyberk & Company, the Vermillion village is an example of a large-scale TND model. This design was carried out in a barren land area, which in the past served as an industrial area, covering an area of around 300 acres, including 1200 residential units and 20 hectares of office and local

shop uses.

The passageway development model of this village features a connected grid that follows the natural ground topography. There lies a circular passageway in the central area conjoined by smaller streets. The village's transportation network follows a public transportation design, and the design is home to a wide range of single-household houses and apartments.



Fig. 2. Images of the Village's Central Areas

The following three features have made the above project operate successfully after being implemented:

- Construction-related economic advantages and efficiency for constructors
- Rational and effective relation with peripheral areas

to promote neighborhoods' level of effectiveness  
- Focus on details of design and implementing the project, as well as focus on the qualitative level of houses

### 2.3. Tabriz School of Urban Planning

Established before the Isfahan School of Urban Planning, the Tabriz School of Urban Planning left undeniable semantic and physical impacts on the Isfahan School (Habibi 1996; Ahari 2006). The Tabriz School of Urban Planning has had significant impacts on all artistic (illustrative), architectural, and urban development features far beyond the civilization of the Azerbaijan region.

Serving as one of the original urban planning schools in Iran, the Tabriz School of Urban Planning spreads its sphere of influence throughout the nation, specifically in Azerbaijan, which constitutes a considerable number of urban settlements in northwestern Iran while employing neighborhood development and construction principles to shape the structures of other cities nationwide. From the 13th century (the Ilkhanid era) until the middle of the Shah Tahmasb Safavid tenure back in the mid-15th century, the city of Tabriz served as the capital of Iran and became the second major city across Iran by the late Safavid era. In the Qajar era, the city was called "Dar al-Saltanah" and took a central role by leading the Iranian community towards thriving cultural and artistic, economic, social, political, and construction domains, marking a major chapter in Iran's history. Tabriz City essentially rose as a School of Urban Planning across Iran as it laid the ground for the introduction of a system of theories and thoughts, as well as a value system for establishing and constructing the way of life across cities.

### 2.4. Historical Developments of Tabriz

The city of Tabriz was seen as one of the most economically thriving cities in Iran in the Ilkhanid and Safavid eras. Politically and socially, the city was also seen as having played a determining role in the Iranian geography in the Qajar era, considering the ensuing Constitutional developments.

#### - Tabriz in the Ilkhanid Era

Having been selected as the capital of the Ilkhanate in the Abaghkhan and Sultan Mahmoud Ghazan Khan tenures (1295 A.D), the city of Tabriz was one of the large cities in northwest Iran. During the Ghara-Ghoyounlou tenure, the city witnessed various construction developments such as the establishment of large educational/training, service, and religious centers, one example of which was the Kaboud Mosque. During the Agh-Ghoyounlou tenure, these developments continued with more focus on establishing trade (e.g., constructing bazaar bridges extending the Tabriz Bazaar), religious, and treatment buildings, such as the Nasiriyeh Complex, not to mention orchards and gardens. However, the city specifically thrived in the Ghazan Khan tenure, becoming one of the main political and economic centers of its time (Mohammad Moradi and Jafarpour 2013, 91). Having been selected as the capital of the

Ilkhanate, Tabriz helped develop urbanism and create effective linking routes between the east and the west of Iran.

#### - Tabriz in the Safavid Era

By the 15th century A.D., Tabriz was again selected as the capital of Iran. The Safavid-era Tabriz had six gates and was composed of various neighborhoods. During the tenure of Shah Tahmasb and his successors, Tabriz was invaded by the Ottomans. The city had once again fallen to the hand of the Safavids when the Ottomans were defeated at the hand of Shah Abbas. Numerous earthquakes and consecutive wars in this era and preceding eras were the main causes of the destruction of the city's buildings and its physical works. However, new buildings emerged and construction once again began following the retreat of the Ottomans from the city and the destruction of their buildings by Shah Abbas in 1610 A.D. (Pakzad 2011, 405).

#### - Tabriz in the Qajar Era

In the Qajar era, Tabriz held on to its position as the Dar al-Saltanah, serving as the city of the prince in the Qajar dynasty. The city of Tabriz was not only home to Qajar princes but also was a major player in connecting Iran to the Caucasus region, maintaining its political position as an economic, cultural, and political hub with Iran's northwestern neighbors (Nader Mirza 1994, 256). When the war between Iran and Russia broke out, the city was directly affected and captured the attention of foreign players such as Russia, England, France, and the Ottomans because of its domestic importance, army, and industrial capabilities.

### 2.5. Components Constituting the Tabriz School of Urban Planning

In the Ilkhanid era, political and ideological factors, among others, were the key factors in building the Tabriz School. The factors affecting the Ilkhanid-era city and urbanism included the growing interest among the Ilkhanate rulers for construction to expand their glory (creation of a utopia) and spread their governance. The majority of urban complexes in the city of Tabriz, including Rob' Rashidi and Ghazaniyeh, were directly constructed at the order of or under the supervision of Ilkhanate rulers or their viziers (Shekari Niri 2005, 74). On the other hand, religious denominations and ethnic measures to shape governments and establish community centers such as Khaneghah (dervish monasteries), as well as mystics shrines, helped create new cores within neighborhoods outside the city, laying the ground for the incremental development of transforming urban spaces across the city (Omran et al. 2006, 75). The Ilkhanid era was followed by the expansion of the city toward new cores, including monasteries, mosques, schools, and shrines, which resulted in the formation of new neighborhoods (Foroutan 2009, 100).

**- Social Factors**

Among the factors influencing the formation of the Tabriz School of Urban Planning was the close link between the two social groups of traders and land owners who had considerable impacts on the city's constituent factors. Traders and industrialists naturally played a key role in developing the bazaar as they selected the neighborhoods surrounding the bazaar and their settlements (Petroufski 2000, 458), resulting in a close competition between residents and various social groups in the development process of the neighborhoods.

**- Economic Factors**

Other factors that helped shape the Tabriz School of Urban Planning were the commerce-based urban growth of Tabriz (due to its situation in the linking intersection of the northwest) in the Ilkhanid and Safavid eras. This growth was increasingly taking shape around the relatively large regions where goods were stored and bazaars were set up for producing industrial goods (Samarghandi 1974, 838).

**- Environmental Factors**

Rapaport maintains: "Regulating functions involves three bio-ecological (related to the environment), demographic, and technological (related to activities) domains" (Rapaport 2004, 313). The Tabriz School of Urban Planning is mainly characterized by its full compatibility with the natural ecology, the weather,

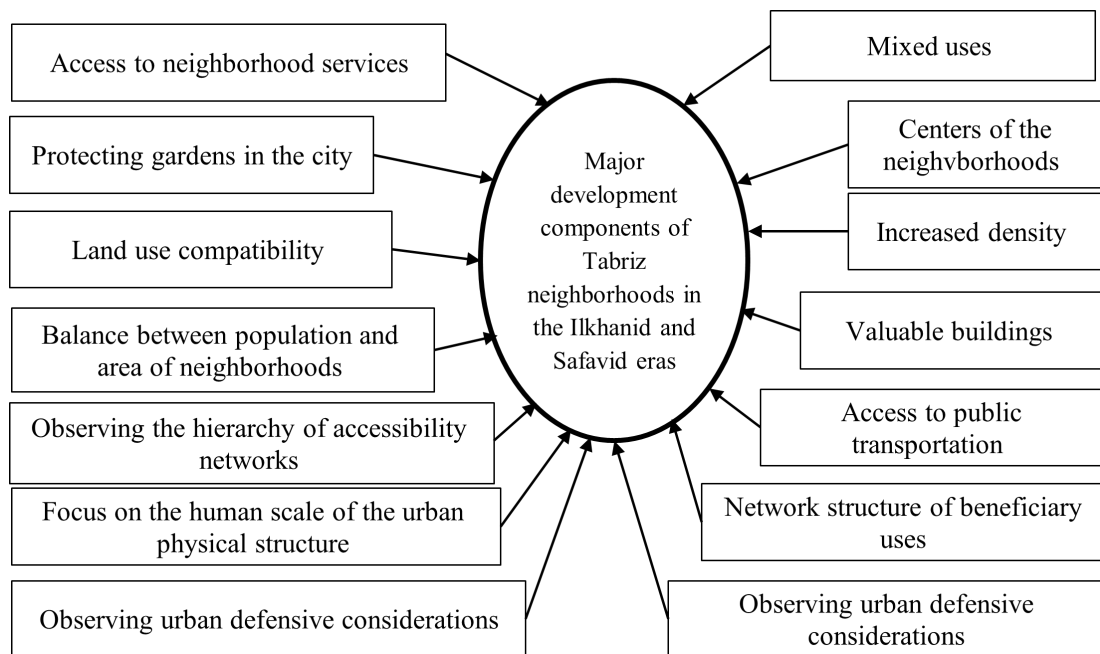
and other climatic conditions.

**- Local Knowledge**

Local knowledge can be regarded as a final factor in this connection. In the Tabriz School of Urban Planning, urban spaces represent the concepts that reveal how physical spaces are formed and make them compatible with Islamic thinking. This school seeks to present a space that avoids uselessness, utilizes concepts of self-acceptance, and helps generate a desirable urban environment.

According to the literature, the surviving sites constructed based on the Tabriz School of Urban Planning feature peculiar geometry, plans, facades, sections, and identities. The features of the Tabriz urban design school (as an example of Iranian-Islamic city schools) encompass some similarities and differences in textures and colors, utilize human scales within physical expansion, and are so designed to exhibit a developed set of various components and mixed uses within the city structure.

Broadly speaking, the Tabriz School of Urban Planning involves two apparent and hidden aspects; the former is observed in the city's physical space and the latter involves a semantic dimension. These apparent and hidden aspects reveal the major components of Islamic urban planning as derived from the Tabriz School of Urban Planning, which are displayed in the following figure.



**Fig. 1. Major Development Components of Tabriz Neighborhoods in the Ilkhanid and Safavid Eras**

**3. LITERATURE REVIEW**

As founders of Neo-Urbanism, Duany and Plater-Zyberk maintain that TND guidelines include self-reliance and multi-functionality, mixed uses, increased density, diverse housing typologies, grid

design priority over buildings, the accessibility of public services required by the neighborhood, the focus on aesthetics and past traditions, neighborhood harmony with the environment and its natural and cultural context, the reduced use of cars and using

public transportation and pedestrian zones instead, as well as respect the natural environment and social traditions (Duany and Plater-Zyberk 2010).

Alexander and Wydemen (2020) demonstrated that the TND model was developed by Jacobs, Crier, and Zyberk in the U.S. in 1990, arguing that this approach emphasizes self-reliant and multi-functional spaces. This model, they concluded, was developed to realize a human scale, diverse traditional models, create walking zones, compressed spaces, create access to public spaces, and generate aesthetics and harmony across urban neighborhoods (Alexander and Wydemen 2020). Traditional units are designed by the following factors 1: multi-functionality of neighboring units, 2: defining the region by its specialized functioning, and 3: corridors as linking spaces for accessibility. According to Garde (2020), TND brings social, economic, and environmental benefits by increasing safety and security, improving health through walkability expansion, reducing traffic costs and pollution, increasing green spaces, and finally reducing dependence on cars (Garde 2020).

In the study How Government's Policy Implementation

Methods Influence Urban Villagers' Acceptance of Urban Revitalization Programs: Evidence from China, Jin et al. (2020) provided governments with novel methods to implement TND, concluding that it is crucial to respect the place identity when development programs are implemented in order to promote TND principles. This, they suggested, will increase public trust and consequently, allow for the adoption of the development programs. In the book Urban Revitalization: Assessment Methodologies and Expected Impacts, De la Roca (2020) argues that the loss of major urban functions in traditional neighborhoods and the degradation of social and economic vibrancy could leave adverse impacts on urban areas. To tackle this, the identity and efficiency of public spaces, as well as economic activities and new employment opportunities should be strengthened. Alpopi and Manole (2019) believed that TND was primarily focused on making the neighborhood fabric compatible with public needs, in conjunction with maintaining local values, promoting the public's image of the neighborhood, and improving social relations and the security situation.

**Table 2: Literature Review (related to the Tabriz School of Urban Planning)**

Year	Researchers	Title and Place of Publication	Research Results
2016	Pour Jafar & Molaei	Explaining Iranian-Islamic urban design features (Case study: Tabriz Grand Bazaar)	This study is concerned with bazaar designs based on people of Tabriz's culture and traditions, linking it to Tabriz's traditional urban design as well as the features and elements used in the bazaar. The study concluded that unlike Isfahan, Tehran, and Kashan Bazaars, the Tabriz Bazaar features a linear structure with relatively fewer branches; the market involves a connected network of direct, corridors, nodes, shops and shopping centers, and sarai's of various branches with highly complex and linear diversity.
2018	Hosseini & Soltani	Comparative analysis of the concept of neighborhood in Iran's traditional system of cities using a similar (alternative) model of the contemporary era	The acceptable neighborhood development model should integrate traditional and modern models to meet a desired model while dealing with respective weaknesses. In essence, neighborhoods should be based on modern needs and adapt to the context of the environment. Also, neighborhood identity values should be protected by using such factors as resident participation in neighborhood development, using cultural, physical, social, and economic structures and models, and introducing new requirements.
2019	Habibi, Tabibian, & Shakiba	Tabriz, modernism, and its impacts on Iran's modern urban planning	This study concerns the impacts of modernity on Tabriz and the city's transforming image following Iran's defeat against Russia and the extension of modernism to other urban planning areas. This model was followed by some other cities like Tehran for similar measures. Revisiting modernism at the Dar al-Saltanah of Tabriz, researchers believe that modern principles are the starting points for the transformation of the city and urban planning across Iran. They finally classify modernism and spatial-physical developments within the city of Tabriz structure based on the introduction of modernity into three parts 1: physical renovation, 2: establishing urban passageway networks, and 3: new urban spaces.

#### 4. METHODOLOGY

Figure 2 below shows the type of the study in various stages. This study fell under exploratory sequential mixed research with a tool-making design. In this study, the qualitative study was first performed

and was based on a tool. This was followed by the quantitative study. In the first stage of the study, which involved the qualitative approach, experts were interviewed, and the statistical population, the literature review, data alignment, and basic theme

codes were examined. Next, qualitative validation criteria were used to develop a primary framework,

which was examined and provided in the form of tools for the quantitative stage.

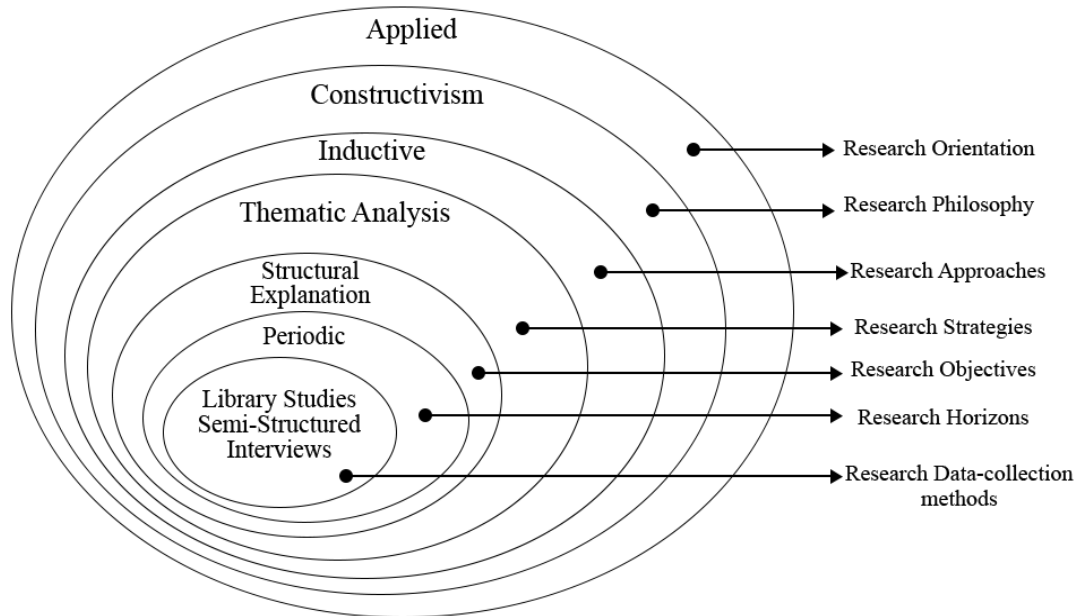


Fig. 3. Present Study Process

In this stage, a questionnaire was provided based on dependent and independent variables derived from the TND model and the Tabriz School of Urban Planning principles. After being examined in terms of validity and reliability, the questionnaire was evaluated using structural equations. Structural equations make use of two path coefficients and T statistic to confirm the relationships between indicators. This part of the study used the Smart-PLS software. Also, experts and

urban directors of Tabriz City comprised the statistical population. The sample population amounted to 250 people who were selected through the Cochran formula at a confidence level of 0.95 ( $p=q=0.5$ ) with an error rate of 0.05. This study calculated the sample volume for 152 people and collected data through a face-to-face questionnaire in a convenience sampling method.

$$n = \frac{N \times \left(\frac{Z_{\alpha}}{2}\right)^2 \times P(1 - P)}{\varepsilon^2(N - 1) + \left(\frac{Z_{\alpha}}{2}\right)^2 \times P(1 - P)} = \frac{250 \times (1.96)^2 \times .5(1 - .5)}{.05^2(250 - 1) + (1.96)^2 \times .5(1 - .5)} = 152$$

### 5. FINDINGS

Internal consistency indicates the correlation between a construct and its relevant indicators. The higher value of the variance explained between the construct and its indicators against the measurement error of each indicator will produce a higher internal

consistency. Cronbach's alpha rate of higher than 0.7 indicates acceptable reliability. Moss et al. (1998) demonstrated a rate of 0.6 as the limit of Cronbach's alpha coefficient for variables of fewer items. Accordingly, Table 4 below shows that Cronbach's alpha values of all indicators are greater than 0.7, suggesting acceptable reliability.

Table 3: Cronbach's Alpha Values

Variables	No.	Cronbach's Alpha Values
Functional/Activity	30	0.901
Environmental	30	0.812

Variables	No.	Cronbach's Alpha Values
Social	30	0.721
Physical	30	0.789

Both of these criteria were used to measure reliability better. If its value is found to be over 0.7 for each construct (Nunnally and Bernstein 1994), it indicates an acceptable internal consistency for measurement models. It is worth noting that the

criterion of composite reliability is a better criterion than Cronbach's alpha in statistical discussions. As stated, and based on Table 4, all variables were over 0.7, suggesting that the measurement models were acceptably fit.

**Table 4: Composite Reliability Values**

No.	Variables	Composite Reliability
1	Functional/Activity	0.966
2	Environmental	0.872
3	Social	0.786
4	Physical	0.701

Fornell and Larcker (1981) demonstrated the AVE criterion for measuring the convergent validity and put the critical value at 0.5. AVE shows the correlation of a construct with its indicators, i.e., the higher this correlation, the higher the fit. This suggests that the

average variance extracted higher than 0.5 shows acceptable convergent validity. As stated, and based on Table 5, all AVE values were greater than 0.5, with the model of the study showing appropriate convergent validity.

**Table 5: AVE Values**

Variables	AVE Values
Functional/Activity	0.592
Environmental	0.518
Social	0.510
Physical	0.505

Before testing the hypotheses, it is required to evaluate the normality of the data to apply the tests based on the data being normal or non-normal. In this test, if the significance level is greater than the error level of 0.05, the H1 hypothesis is met, otherwise the H0 hypothesis is met.

$H_0$ : Data are not normal (not provided by a normal population)

$H_1$ : Data are not normal (provided by a normal population)

**Table 6: Kolmogorov-Smirnov Test of Study Variables**

Variables	Test Value	Sig.
Functional/Activity	0.355	0.112
Environmental	0.221	0.123
Social	0.551	0.145
Physical	0.155	0.201

Because the significance level of the study's variables is larger than 0.05, the H1 hypothesis is supported, and data collected for the study's variables are concluded to be normal.

If the factor loading of an indicator is negative, it indicates its negative effects on explaining the relevant

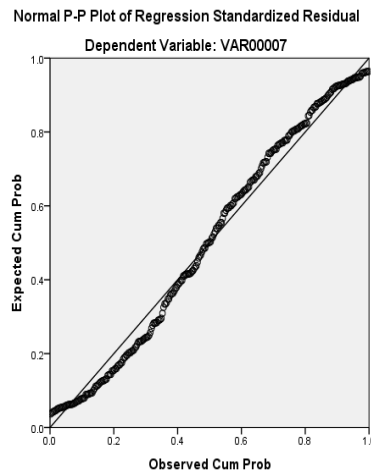
construct. In other words, the indicator-related item is designed reversely. Table 7 shows the factor loadings of the study's items.

**Table 7: Items' Factor Loadings**

Indicators	Variables	Factor Loadings
Physical	Furniture	0.825
	Diversity	0.551
	Access to Transportation	0.732
	Spatial Configuration	0.693
	Path Connectivity	0.424
	Mixed Use	0.890
Functional	Diversity of Activities	0.695
	Density of Activities	0.673
	Frontal Wall Activation	0.826
	Safety and Security	0.765
	Uses Organization	0.726
	Flexibility	0.549
Social	Social	0.695
	Readability	0.711
	Diverse Space Use	0.784
	Sense of Attachment	0.481
	Sensory Richness	0.756
	Social Security	0.714
	Social Interaction Spaces	0.786
Environmental	Environmental	0.720
	Environmental Health	0.815
	Quality of Sounds	0.779
	Ecosystem Balance	0.789
	Fighting Pollution	0.828
	Climate Comfort	0.695

The linearity of the relationship between the variables is the assumption of Pearson and Regression Correlation Statistical Tests. Therefore, it is necessary to meet this assumption. In a linear relationship, the points are expected to fall on a straight diagonal or curved line from the end of the left side to the top of the right side. This shows that no significant deviation

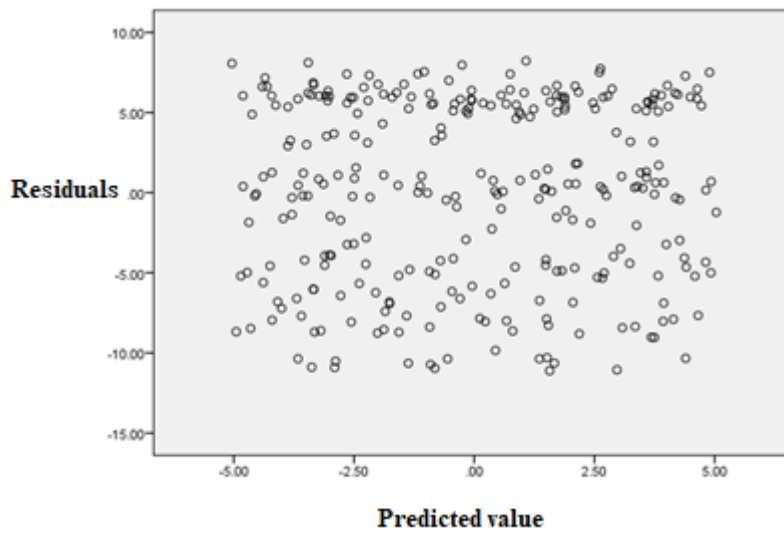
from normality has occurred. As shown in Figure 3, since the points acceptably fall over the straight diagonal line from the end of the left side to the top of the right side (around the regression line), the linear relationship between the variables is concluded to exist.



**Fig. 4. Linearity of Regression Residuals of the TND Variable**

Moreover, in the scatter plot of standardized residuals, the residuals are expected to have a relatively rectangular distribution, with the majority of the scores concentrated in the center of the plot (along the zero point). As shown in Figure 4, since the majority

of the scores are concentrated in the center of the plot (along the zero point) and the residuals have a relatively rectangular distribution, the assumption of the uniform scattering of the residuals has not been violated.



**Fig. 5. Scatter Plot of the TND Variable**

Co-linearity indicators include tolerance and variance inflation values, as a tolerance value of over 0.1 and a variance inflation value of less than 10 confirm the

assumption. According to Table 8, values of tolerance and variance inflation show no sign of violating the assumption.

**Table 8: Values of Tolerance and Variance Inflation in the Independent Variables**

Indicators	Tolerance	Variance Inflation
Physical	0.56	1.541
Functional/Activity	0.53	1.442
Social	0.44	1.352
Environmental	0.41	1.361
TND	0.20	1.423

At first, to identify the study's criteria, a regression model was used between physical, activity/functional,

social, and environmental indicators and TND. The regression analysis results are given in Table 8.

**Table 9: Multiple Regression Analysis Results for TND Criteria**

Predictive Variable	Variable	R	R <sup>2</sup>	F	Sig	Beta	T	Sig
Physical						0.401	1.9400	0.000
Activity/ Functional	TND	0.782	0.610	288.616	0.000	0.386	2.8640	0.000
Social						0.469	1.7891	0.000
Environmental						0.189	4.665	0.000

Regression results show that physical, activity/functional, social, and environmental factors were among the TND criteria, at the significance level of 0.05.

should be defined between TND indicators and the indicators specified for each of the physical, activity/functional, social, and environmental criteria. Table 9 shows the regression analysis results.

To identify the study's indicators, a regression model

**Table 10: Multiple Regression Analysis Results for Physical Indicators**

Predictive Variable	Variable	R	R <sup>2</sup>	F	Sig	Beta	t	Sig
Furniture						0.311	8.491	0.000
Diversity						0.214	9.647	0.000
Access to Transportation						0.296	6.324	0.000
Spatial Configuration	TND	0.856	0.732	503.009	0.000	0.199	4.701	0.000
Walking Path Connectivity						0.111	3.609	0.000
Mixed Uses						0.259	5.541	0.000

Table 10 shows that at the significance level of 0.05, furniture, diversity, access to transportation, spatial configuration, walkable path connectivity, and mixed-

use indicators were among the physical indicators affecting TND.

**Table 11: Multiple Regression Analysis Results for Activity/Functional Indicators**

Predictive Variable	Variable	R	R <sup>2</sup>	F	Sig	Beta	t	Sig
Diversity of Activity						0.215	7.451	0.000
Density of Activity						0.344	10.365	0.000
Frontal Wall Activation	TND	0.745	0.553	227.724	0.000	0.412	11.498	0.000
Safety and Security						0.326	6.777	0.000
Use Organization						0.267	6.547	0.000
Flexibility						0.501	8.658	0.000

Table 11 shows that at the significance level of 0.05, indicators of the diversity of activity, the density of activity, activated frontal wall, safety and security,

uses organization, and flexibility were among the activity/functional indicators affecting TND.

**Table 12: Multiple Regression Analysis Results for Social Indicators**

Predictive Variable	Variable	R	R <sup>2</sup>	F	Sig	Beta	t	Sig
Social						0.141	4.851	0.000
Readability						0.487	6.561	0.000
diverse Use of Space						0.231	8.894	0.000
Sense of Attachment	TND	0.903	0.814	558.383	0.000	0.235	3.794	0.000
Sensory Richness						0.147	9.745	0.000
Social Security						0.109	10.865	0.000
Social Interaction Space						0.228	5.957	0.000

Table 12 shows that at the significance level of 0.05, indicators of social, readability, diverse use of space, the sense of attachment, sensory richness, social

security, and social interaction space are the social indicators affecting TND.

**Table 13: Multiple Regression Analysis Results for Environmental Indicators**

Predictive Variable	Criterion Variable	R	R <sup>2</sup>	F	Sig	Beta	t	Sig
Environmental						0.157	5.741	0.000
Environmental Health						0.171	8.258	0.000
Quality of Sounds	TND	0.661	0.430	65.158	0.000	0.245	9.963	0.000
Ecosystem Balance						0.398	2.357	0.000
Fighting Pollution						0.278	10.751	0.000
Climatic Comfort						0.159	8.953	0.000

Table 13 shows that at the significance level of 0.05, indicators of environmental health, quality of sounds, ecosystem balance, fighting pollution, and climatic comfort were among the environmental indicators affecting TND.

neighborhoods and causing dissatisfaction among the residents of textures and ineffective developmental methods. This will eventually lead to the construction of neighborhoods that are alienated from their local identity.

## 6. CONCLUSION

Today, the Traditional Neighborhoods Development (TND) model serves as a key model to provide developmental programs for traditional neighborhoods in different societies. In historical cities, the middle areas of the city enjoy historical values but suffer from urban decay; however, they grapple with degraded efficiency compared to their peripheral newly constructed areas, thus losing their ability to recover their roles effectively. These degradation and inefficiency problems are noted in physical, economic, social, and functional areas, mostly resulting in falling resilience and livability against environmental changes. This will over time cause the original and local residents to leave their textures and entail outgoing populations; a situation facing the older neighborhoods of the city of Tabriz.

As this situation pervades traditional cores of cities, intervention with older and dilapidated textures will increase, thereby resulting in the development of traditional neighborhoods in a way that is different from the identity, cultural, and physical textures of the

Hence, it is becoming increasingly important to expand the TND theory using local models (local urban planning schools for neighborhood development). The TND model of old and dilapidated neighborhoods of cities emphasizes neighborhood-oriented tendencies, public participation, physical urban planning, spatial connectivity, the principle of hierarchy, and the expansion of smart transportation (with emphasis on walkability). According to this approach and its principles as well as the neo-urbanism perspective, Tabriz's old neighborhoods should be organized by using the Tabriz School of Urban Planning. Meanwhile, the older neighborhoods of this city should be strengthened based on a human scale to help create profound living experiences for the public in urban spaces.

The integration of the TND concept and the Tabriz School of Urban Planning will help create a sense of place among the people of the city and thus prevent the sense of placelessness in neighborhoods. This study used neo-urbanism perspectives and components of TND to measure and generate old neighborhood capacities in the city of Tabriz using

the principles of the mentioned school. While previous similar research discussed TND by simply relying on urban regeneration, preserving buildings, and using development-stimulating programs for neighborhoods, the present study aimed to apply

a local school of urban planning and its constituent components that would adapt to modern residents' needs and help develop traditional neighborhoods by focusing on development and life in those neighborhoods.

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## CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

## MORAL APPROVAL

The authors commit to observe all the ethical principles of the publication of the scientific work based on the ethical principles of COPE. In case of any violation of the ethical principles, even after the publication of the article, they give the journal the right to delete the article and follow up on the matter.

## PARTICIPATION PERCENTAGE

The authors state that they have directly participated in the stages of conducting research and writing the article.

## ENDNOTE

1. A set of shops within a bazaar

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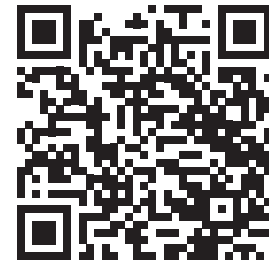
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