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Social Sustainability Assessment of Neighborhood Design: A Comparative Study in Nablus City Based on Multiplicity and Singularity

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Abstract: This paper assesses the potential of multiplicity in the housing environment for achieving social sustainability compared to singularity. For this purpose, a neighborhood assessment framework was developed to cover three values of social sustainability, namely, stability, continuity, and fairness, as well as several factors related to each value. Two cases were chosen from the neighborhoods in the city of Nablus: Type (1) as an example of multiplicity, and type (2) as an example of singularity. The research data were collected through an architectural survey on the features of both types of neighborhoods, and analyzed in details. On this basis, the two types of neighborhoods were compared based on the said values. The results show that the values of sustainability increase in type (2) at the level of the single building, while growing in type (1) at the level of the residential neighborhood. Multiplicity is a high-potential approach for achieving social sustainability, if the design of the residential buildings caters to people's needs and wants. In addition, several suggestions were made for improving the neighborhood design in Palestine based on multiplicity.

Keywords: Neighborhood design; Social sustainability; Multiplicity; Nablus city; Housing

1. Introduction

Multiplicity and singularity are two famous approaches of neighborhood design in Palestinian cities. Multiplicity refers to the various choices in terms of forms, types, and uses in all parts of the neighborhood. Singularity, on the opposite, stems from the systematic repetition of single-family houses all over the neighborhood.

During the last four decades, the Palestinian cities, with Nablus as a case, witnessed a shift in the main type of urban housing from single-family buildings to multifamily buildings (apartment blocks). The transfer is accompanied by an approach to design residential neighborhoods on the outskirts of cities based on the repetition of single-family houses (detached houses), without giving much consideration to public spaces and services [1].

This approach was adopted to meet the need for single-family houses, even on the outskirts of the cities. These neighborhoods frequently target a specific segment of tenants, including employees, engineers, doctors, and others [2]. Today, however, most of Nablus' neighborhoods are made up of structures with mixed uses and multifamily buildings that have grown haphazardly. However, some single-family buildings outside the city are still able to draw in many residents [3].

Accordingly, Nablus city is dominated by two types of residential neighborhoods: Type 1 refers to the neighborhoods developed based on street planning and plot division, which do not interfere with building designs. This type of neighborhoods is based on the spontaneous growth of multifamily housing, and mixed-use buildings, and usually follow the wishes of the owners and the provisions in building codes. The locations of these neighborhoods are characterized by the multiplicity of housing types and the variety of architectural forms and building uses.

Type 2 refers to the neighborhoods developed with singularity-based systematic-prior planning for streets and buildings based on singularity. That is, the types and design of buildings (usually single-family housing) are determined before the project commences. For these neighborhoods, the urban landscape is usually characterized

by monotony and the repetition of a specific number of housing patterns.

Hence, this paper explores the design of the above two types of residential neighborhoods in Palestinian cities from a social point of view. The authors examined the impact of architectural design on social sustainability, an important aspect of sustainable development [4]. The problems of both types of residential neighborhoods were examined, before evaluating how they affect social cohesion and social belonging to their surroundings in the long term. It is concluded that one of the two types of residential neighborhoods has much potential for sustainable neighborhood design for the future extension of the cities in Palestine.

2. Literature Review

It is widely known that the type of housing is the main influencing factor of social relations [5]. The more a housing design can contribute to a sustainable environment, the more it is regarded as a successful design [6]. In the past, civilizations designed their residential areas to accommodate both private and public functions, resulting in a multiplicity of architectural spaces and types that serve many social and cultural activities for all of the locals [7]. Hence, public and shared spaces are crucial for ensuring social sustainability in the neighborhood [8]. These are locations where neighbors from all social classes congregate and engage in daily activities [9]. The neighborhood's variety of outdoor areas reflects social fairness for all residents [10], which creates various impressions regarding the society's history and culture [11]. As a result, public and shared spaces should be adaptable to changes in residential activity at various hours of the day and night [12]. Traditional Palestinian neighborhoods, or "quarters," [13] typically have a mix of commercial, cultural, and social activity with residences close by and dispersed fairly [14]. Traditional people prefer variety, containment, and tangibility in their living spaces [15] and avoid segregating housing from other activities. Therefore, public and collective spaces were enclosed within the cluster of houses, as well as other functions [16] (Figure 1).

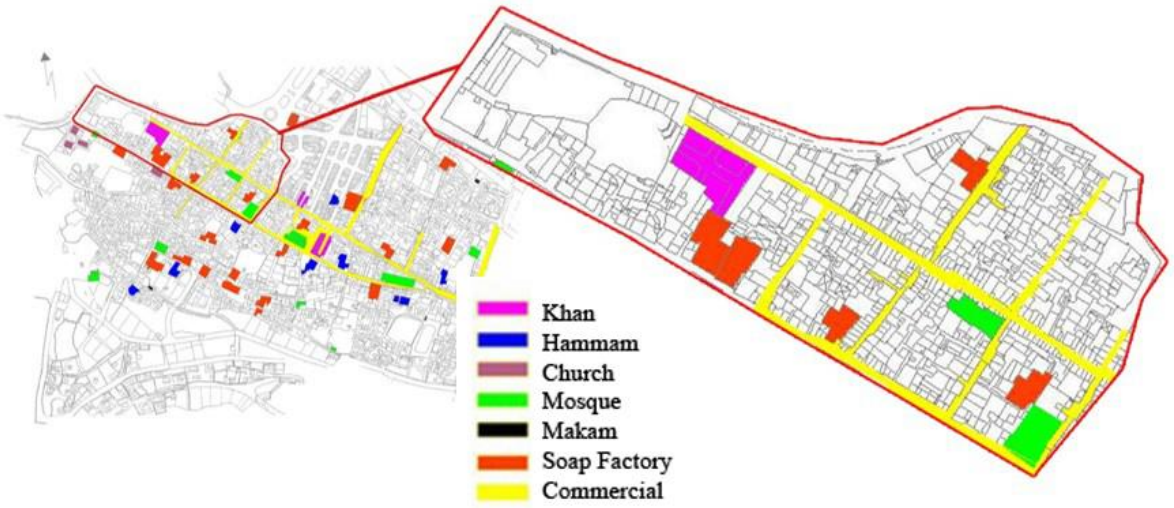


Figure 1. Example of multiplicity in the traditional neighborhood of Nablus old city

2.1 Social Sustainability and Housing Design

Housing design and social sustainability are closely related because of the close bond between social sustainability and the elements of residential areas, such as density, urban form, and housing type. The physical elements of the housing environment, including the houses, services, and outdoor spaces, will have an impact on how people live. Therefore, every choice made regarding housing design has an effect on the stability of the local society [17]. The relationship between social sustainability and the built environment must also be understood. This study will examine some of the various contributions made to the understanding of social sustainability as they pertain to the built environment.

The ability to remain or be continued for a very long period is what is meant by sustainability development for a place [18]. This study is interested in social sustainability because there are less housing-related searches than there are for economic and environmental sustainability [19]. Thus, the continuity and stability of the social environment in terms of everything related to society and its organizations can be described as social sustainability [20]. Therefore, the core of social sustainability [21] is the continuity of viability, health, and functioning of "society" itself as a collective entity.

Researchers looked into a variety of variables to confirm the relationship between social sustainability and the

built environment. Social interaction, sense of place, social participation, safety, social equity, and neighborhood satisfaction, according to Larimian and Sadeghi, are the six fundamental elements of social sustainability in the urban environment. Larimian and Sadeghi [22] divided this relationship into two main factors with some connected branches: Social justice is the first factor, which entails providing all members with equitable access to services and opportunities. The second factor is the continuity of the communities, which includes the availability of opportunities for social interaction, a sense of belonging, security, environmental quality, home satisfaction, stability, and participation in civic affairs [23]. According to a separate study, justice, security, adaptability, and social interaction are the cornerstones of social sustainability [24].

Even if there are other aspects associated to social sustainability described above, some scholars tried to focus on those that have a significant impact. Social interaction, for instance, may be of significant relevance [25]. Hancock emphasized on the provision of services and activities that help in developing a proper environment for social interaction, which he considers as the most crucial infrastructure for social sustainability. Because societies and their environments have a good interaction, some academics have studied social sustainability [26]. Ole and Stern argued that social sustainability should be built on the environment's supportive relationship with a group's socio-cultural roots. Such a relationship ought to improve everyone's standard of living, which leads to successful social integration with the environment [27]. In addition, this paper argues that there are indirect factors that strengthen social connections and coherence, which are crucial for social sustainability. For instance, privacy is a fundamental human need that should be taken into account in housing design, particularly in Palestine [28].

2.2 The Theoretical Framework

Based on the review about, this study develops a theoretical framework for assisting neighborhood design in terms of social sustainability. Three main values were extracted: the first value is stability, which includes factors of everyday needs that enhance social stability: social interaction, integration with the environment, security, and sense of belonging to the neighborhood. The second value is continuity, which includes factors of neighborhood design that enhance the continuity of the social environment for current and coming generations: the adaptability of the house, the adaptability of the environment, the ability to satisfy residents on the house level and the surrounding level, and the ability to provide environmental qualities. The third value is fairness, which is the ability of the neighborhood to provide residents with different factors in an equal matter: fairness of housing choices, proximity for all types of houses, access to services and opportunities, and encouraging participation. Table 1 shows these values and the factors related to each value. On this basis, the authors further examined the proposed framework in the two types of neighborhoods of Nablus city.

Table 1. Theoretical framework for improving social sustainability of neighborhood design

Stability	Continuity	Fairness
Social interaction	The adaptability of the house	Fairness of housing choices
Integration with the environment	The adaptability of the environment	Proximity for all types of houses
Security	Neighbourhood satisfaction	Access to services and opportunities
Sense of belonging to neighborhood	Home-satisfaction	Participation
	Environmental quality	

3. Methodology

Quantitative and qualitative research methods are combined in this study to examine and enhance neighborhood design in Nablus city. Based on the architectural analysis, which includes as-built drawings, photos, and maps, data were gathered and examined. Moreover, the study relied heavily on the observation of residents' behavior and the gathering of their opinions through questionnaires. Consequently, this study went through three distinct phases: 1. Gathering data from the literature and the site; 2. Analyzing the data obtained from architectural surveys, and interviews with respondents; 3. Classifying data and extrapolating results.

3.1 Case Study

To understand housing design in Nablus city, it is important to choose the cases that are suitable for questionnaire surveys. Here, two cases are selected from the outskirts of the city. They are equally far from the downtown, which assures the comparability. The following architectural features were examined: Floor number, land use, and building type. The resident satisfaction with each type of buildings was measured. As shown in Figure 2, Rojeeb neighborhood was taken as an example of singularity, which consists of systematic repetition for single-family housing; Almaajeen neighborhood was chosen as an example of the multiplicity of housing types and uses.

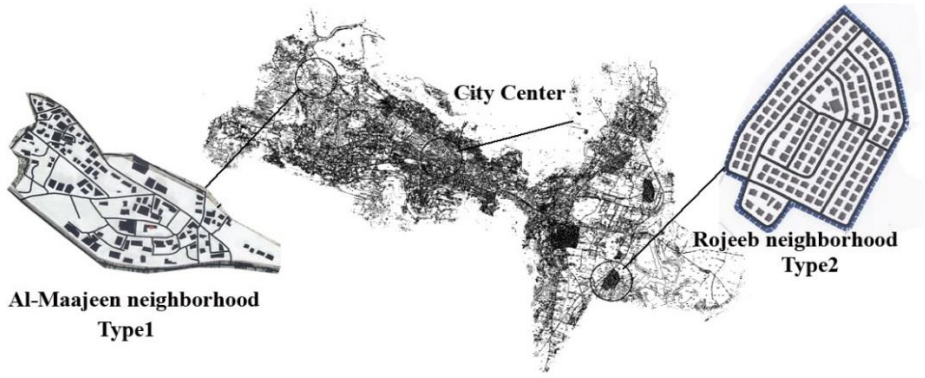
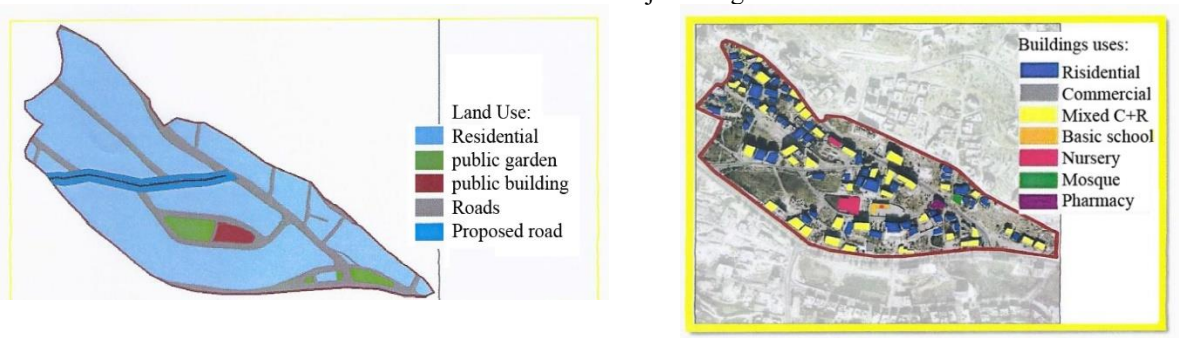


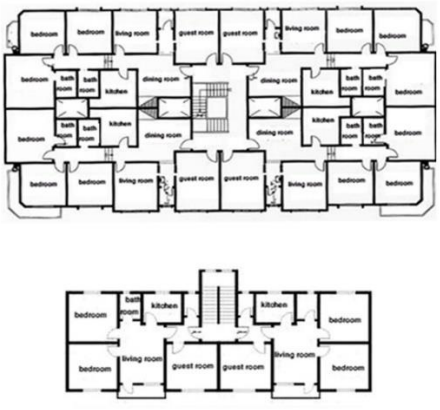
Figure 2. The location of the chosen case studies

3.1.1 ALmaajeen neighborhood (type 1)

Numbers of floors in Al-Maajeen neighborhood



Land use of Al-Maajeen neighborhood



Examples of apartment buildings

Example of a mix of used buildings

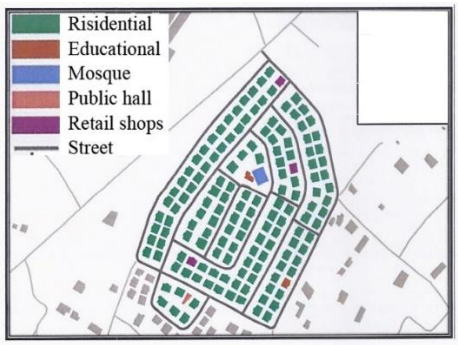
Figure 3. Al-Maajeen neighborhood- type (1)

This neighborhood appears on the outskirts of the city. The buildings in this neighborhood were constructed without prior planning. Only plots of land are planned and owned by different families, who then build on them as needed. The construction in the area generally begins, as separated families chose to build independent houses. Later, the area developed into a hub of multi-family buildings. These buildings were planned and built by investors, before being sold as apartments to families. As a result, this neighborhood has a mix of single-family buildings and multi-family buildings. Since no organization determines the shape and size of the buildings, the area is featured by spontaneous and sometimes stochastic growth. Many of the local buildings are for mixed uses. Investors are keen to establish shops on the ground floors and offices used for service purposes, apart from dwellings. The neighborhood has a medium to high density, because many families are accommodated in apartment blocks in such a small area.

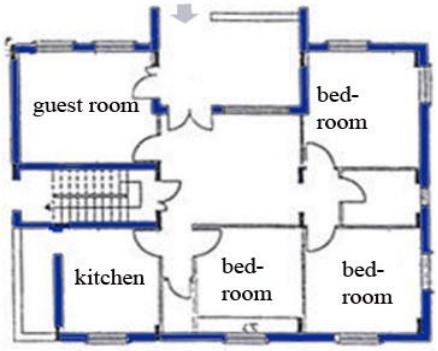
Al- Maajeen neighborhood is the chosen example for type 1 (Figure 3). To develop this neighborhood, many housing types were constructed during the 1980s. It is distinguished by a central area that hosts the public garden and school. In addition to residential buildings, it is identified by the presence of two mosques on the outskirts and several buildings with multiple uses. The site plane of the case shows that the neighborhood has similarities to Peterman's model of neighborhoods [29] in terms of Streets-Ring Road, Central area- services, and school position. The neighborhood also bears resemblance to traditional quarters: A mix of uses, high density, spontaneous expansion, and a range of building types.

3.1.2 Rojeeb neighborhood (type 2)

Floors number in Rojeeb housing



The land use of Rojeeb housing



An example of single- family housing plan

An example of single-family housing

Figure 4. Rojeeb-family housing- type (2)

As it caters mostly to those with modest income—typically employees of various specialties—and has a medium population density, Rojeeb neighborhoods have proliferated in recent years on the outskirts of Palestinian cities. These neighborhoods initially had a modest population due to the single-house layout, but soon the population doubled as the number of floors increased, serving as the hub of sizable population enclaves on the fringes of cities. Thus, the main characteristic of such housing is the dominance of housing functions based on the straightforward and orderly repetition of single houses. In the majority of cases, these houses evolved into family houses with two or more housing units on several floors belonging to the same family, typically consisting of siblings and their families.

The type 2 case, Rojeeb housing, is depicted in Figure 4. In the 1980s, the municipality of Nablus developed and planned this area based on a repetition of the single-family detached house with a single ground floor. Figure 2 shows the staircase included in the plan, which was eventually used to extend numerous homes up to four levels. The figure also shows the system of streets that are equally important and provide easy access to every home. The housing complex has a modest space for services that includes a mosque, a school, and a park. As previously stated, additional small services are located at the corners.

3.2 Questionnaire Survey

The purpose of the questionnaire was to gauge users' satisfaction with both their homes and their immediate surroundings. People were questioned regarding any changes made to their houses that might have affected how comfortable they felt inside. The study selects 60 different housing units from the two cases for the survey after examining the features of various housing. 30 multifamily units (type 1) and 30 single-family units (type 2) were selected. The house samples were chosen against the criterion of comprehensiveness and variation. As a result, the locations of the houses are varied: Either close to the center or inside the boundaries. In addition, physical characteristics are also varied to the greatest extent possible, including size and type according to the number of bedrooms. The samples also vary in terms of the number, ownership, and income of homeowners. The general information of the surveyed householders is displayed in Figure 5.

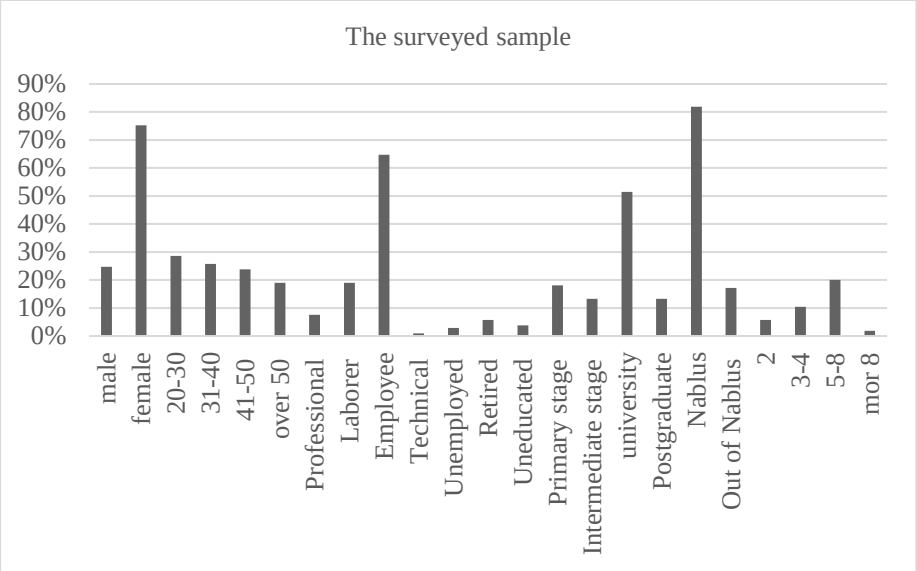


Figure 5. Characteristics of the respondents

Figure 5 shows that 81% of the families are native to the city because the father was born in Nablus. The figure also demonstrates the key characteristics of the recipients. Firstly, the samples have a significant portion of young people (38% are under 30 years old and 40% are between the ages of 31 and 40). However, 80% of the recipients are women compared to 20% of men because women often spend more time at home than men do in Nablus city, which enhances the likelihood that women will complete the questionnaire. Moreover, there are a lot of relatively big families in the samples; the average number of people per family is five. It is assumed that most families in the sample have three or more children because extended families are not represented in the samples.

4. Results

Results of the survey were classified in Table 2 which contains values of sustainability and the surveyed housing types: Type (1), and type (2). As mentioned before, type (1) is the neighborhood based on the multiplicity of housing types and uses, and type (2) in the neighborhood is based on singularity with simple repetition of family housing. The table includes results of the three sections to measure social sustainability in both types: Stability, which includes measuring the ability for social interaction, integration between the house and the environment, security, and belonging of residents to the neighborhood. The second which is continuity; includes measuring the ability for adaptability of the house and the environment, and the resident's satisfaction with the house and the neighborhood. The third which is fairness includes measuring the fairness of housing choices, proximity for all types of houses, access to services and opportunities, and people's participation in the design. The following will discuss all results of the table in detail.

Table 2. A comparison between type (1) and type (2) based on the values of social sustainability

		Type (1)	Type (2)
Stability	Social interaction	70%	68%
	Integration with the environment	72%	79%
	Security	72%	72%
	Belonging to the neighborhood	82%	79%
Continuity	The adaptability of the house	33%	67%
	The adaptability of the environment	66%	35%
	Neighbourhood satisfaction	73%	68%
	Home-satisfaction	72%	76%
	Environmental quality	72%	74%
Fairness	Fairness of housing choices	82%	78%
	Proximity for all types of houses	83%	65%
	Access to services and opportunities	86%	47%
	Participation in the design	66%	72%
	Average	71%	67%

4.1 Stability

The first section starts with the ability of the neighborhood for social interaction, which was measured by asking people about the adequacy of their interior organization for socializing, and if it conserves the householders' privacy in terms of receiving guests. Residents were also asked about their relationship with neighbours and how far the surrounding environment encourages intimacy between them. Finally, residents were asked about outdoor spaces and public buildings it encourages social interaction. The average results of all these questions were summarized in one item: Social interaction.

Table 2 shows a higher satisfaction of the residents on overall social interaction in type (1) of neighborhoods 70% compared to 68% in type (2). However, the survey has revealed that social interaction can have two forms: the first is inside houses, which is highly increasing in type (2), these houses are relatively large and have good facilities for guests. The second is in public spaces which highly increase the multiplicity of types (1), the existence of wide streets, public buildings, and shops facilitate this interaction. While type (2) depends on the provision of private places for social interaction, such as homes and private gardens, and collective spaces and public buildings, public spaces are limited. However, there is greater social interaction in type (1) compare to the first type due to the presence of multifunctional buildings and more public spaces.

In terms of the integration between the house and the surrounding environment, people were asked some questions that measure the satisfaction on the nearest street in terms of environmental qualities, view, and privacy from the street. They were also asked about the relationship with neighbouring buildings in terms of environmental qualities and privacy. The average score of all these questions was placed in the item: integration with the environment.

Hence, the result of the survey has shown that type (2) has more satisfaction 79% compared to 72% for type 2 in terms of integration with the environment. The result was surprising because it is expected to have much integration in type (1). However, we believe that relying on detached houses in type (2), private gardens and even private parking lots may reduce the possibility of interaction with the surrounding environment due to the reduction of common and multifunctional spaces. While spontaneous growth and multiplicity indicate a better interaction between the residents and the surrounding environment, in contrast to the pre-planned plans in the first pattern imposed on the residents. Besides, the observation shows that people in type (2) look to systematic repetition as a way of integration between parts in the visual matter, which is true but it decreases the opportunity for involving variations of buildings.

Measuring security was an easy task compared to the previous factors because it is clear for ordinary people - compared to integration with the environment for example-. Thus, residents were directly asked about their satisfaction with security in the neighborhood. An equal score of satisfaction on security was obtained: 72% in each type. A proper explanation for the result is in type (2) feeling secure is related to two main factors: low density of traffic, and most neighbours knowing each other due to the relatively small number of houses. While in type (1) feeling secure could have different reasons, the availability of a diversity of jobs and housing patterns ensures a more vibrant area during the day and night, which increases the feeling of security among the resident.

In terms of belonging to the neighborhood, two questions were designed to verify how far residents belong to their neighborhood: how much they love their neighborhood and how far they feel that they should conserve it. The average of these questions was placed in the item belonging to the neighborhood. Table 2 shows that belonging increases to 82% of type (1) compared to 79% in type (2). This result can be justified by understanding the difference between private and public zones of both types. In type (2) belonging at the housing level increases whenever there are buildings and common areas among the residents. The significant availability of the property factor at the level of private property. Relying on private spaces reduces the chances of belonging to the

neighborhood as a whole. In type (1), it is noted that the multiplicity of public areas and mixed of use buildings increase the belonging of the residents of the neighborhood. On the contrary, the satisfaction with houses increases in type (2) 76% compared to type (1) 72%. The reason is the relatively large and comfortable housing units in type (2).

4.2 Continuity

This section starts with measuring the ability for adaptability of the house. It was measured by tracing the alteration on the housing units by users. People were asked about changes like additions or divisions. They were also asked about their satisfaction with the adaptability of the house to their renewed needs, the average result of these questions is placed in the first item of this section.

The results show only 33% in terms of houses-adaptability in type (1) compared to 67% in type (2). On one hand, family houses were able to have much more changes, with high satisfaction for people as it is based on making changes in the single housing type. It was noted that the ability of single houses to adapt to the renewed needs of families can satisfy the resident's needs, especially by providing the possibility of building additional floors. On the other hand, most of the surveyed housing units in type (1) were apartments, which have very limited opportunities for change. However, on the wider scale, the possibility of functional adaptation in type (2) decreases to 35% compared to 65% in type (1) due to the limited options within the specified area of the repeated houses compared to the multiplicity of types. Besides, the planning of streets and buildings does not involve enough flexibility to receive required changes over time. While, in type (1), the lively and spontaneous way in which the area develops and the diversity in the housing pattern can reflect the possibility of good adaptability for the new needs compared to type (2).

The overall satisfaction in the neighborhood was measured by asking people some questions related to their satisfaction with outdoor spaces, public services, and green areas. The average of these questions was placed in this item. The survey has revealed that the satisfaction with the neighborhood increases in type (1) 73% compared to type (2) 68%. The reason as observed is related to the variation of outdoor spaces and public services in type (1). Hence, the satisfaction in the surrounding neighborhood increases in the multifamily housing due to the mix of use and approximate public services.

Environmental qualities were measured by asking people about noise, ventilation, and lighting. These qualities can slightly increase in single-family housing because of three reasons: Low density of people, low density of traffic, and low rising of most buildings. Which leads to less visual and acoustical pollution. However, residents in type (1) may prefer other environmental qualities that are provided by the multiplicity: Such as wider streets and long step back distances between buildings, and high rising which provide calm from the street and pleasant views.

4.3 Fairness

Fairness of housing choices meant to have equal opportunities for choosing an adequate house for different patterns of householders. Differentiation of houses can be measured by: Different orientations, different areas, and different spatial designs. Table 2 shows an increase in housing choices in type (1): 82% compared to 78% in type (2). That means that people are relatively satisfied with one choice of housing in type (2), which has similar characteristics to most families. The reason for this satisfaction can be the similarity of socio-economic characteristics of the residents in type (2), most of them are employees. However, the multiplicity of housing choices is still able to satisfy many people in terms of housing choices.

Another factor of fairness is the proximity of all types of houses. The table shows that type (1) has a higher score of 83% compared to a relatively low score in type (2) 65%. This is a logical result as the multiplicity of housing types increases in type (1), while type (2) has one repeated housing type, which is single-family houses. The score represents the degree of need for other types of houses in type (2). Hence, although the equality for the housing type increases in type (2) because of the similarity of the house design. But fairness does not always mean equality, usually, people prefer to have the opportunity to choose their housing type: a single house, an attached house, or an apartment, based on their needs and wants. Such choices are not completely fulfilled in type (1).

In terms of access to services and opportunities, the score was extremely increased in type (1) at 86% compared to 47% in type (2). This result represents the need for a multiplicity of use in type (2) in the opinion of most recipients. People are not satisfied enough with the public services and public spaces in type (2).

Finally, people were asked about their satisfaction with their participation in the design of their houses. The results show a higher satisfaction among residents in type (2): 72% compared to 66% in type (1). The reason is single-family housing most people have the opportunity to participate in shaping their house. For example, when the family decide to build upper floors on the roof, they can choose a design that preserves their privacy in terms of entrances and balconies. While the most surveyed units in type (1) were apartments that were pre-designed and implemented. Residents in apartment buildings rarely have the opportunity to participate in the design of their apartments or buildings.

5. Discussion

From the previous comparison, the overall score of type (1) is higher than type (2) due to the benefits of multiplicity. However, the overall score has a relatively small gap between types, because some parts of the table have higher scores for type (2). It is noticed that the higher score of type (2) is in sections like: the adaptability of the house, home satisfaction, and participation in the design. These all are not related to the type of housing itself, but to the way of designing the selected case study. Which led to the belief that these scores can be changed in other case studies of the same types. The following summarizes these benefits and their potential for social sustainability,

a. Encouraging a unified environment: Good distribution of different elements will enhance equity between society members and sustain the sense of unity between parts of the neighborhood to look like one coherent unit. Which supposes to serve a stable and coherent society.

b. Encouraging a flexible environment: Not only flexible building- that successfully responds to the majority of householders' needs. This benefit should increase people's satisfaction with their surroundings, and decrease alterations in the whole environment, which is supposed to sustain the continuity of the neighborhood and increase people belonging to their environment.

c. Encouraging an accessible environment: In which people can reach different parts of the neighborhood for their daily activities. This benefit encourages equity between residents for better participation in public activities and socializing.

On the contrary, these qualities are not supported enough by singularity. It was noted that type (2) is one of the rigid patterns of design because it does not allow for many changes except at the level of the housing unit. The systematic repetition of family houses can increase the satisfaction of the housing units, but it is not able to satisfy all factors of social sustainability, because many of these factors are based on the relationship between houses and the surrounding environment. As a result, a combination of designing housing units and their relation with the surrounding is needed to achieve social sustainability. However, this finding raises questions about the demand for singularity in type (2) and the small differences in score compared to type (1). The following will summarize the proper reasons for such demand, and score based on the analyzed case studies:

a. It is noted that residents' desire to live in housing units is supported by economic and social motives. Many residents desire to own single-family housing units like in type (2) of housing for prestige reasons.

b. The development of the city in previous years was directed towards apartment buildings, which may not completely respond to the family's socio-cultural needs, especially privacy between neighbours. Which makes single houses a better choice.

c. The unified society in type (2) -which is usually composed of similarities of families' characteristics- can attract many families to live there despite its disadvantages.

However, to recommend type (1) as a better alternative for type (2). Many actions are needed to improve the social qualities of type (1) based on the previous results, of sustainable housing design in Palestine:

a. Considering the preferred housing type in the design: The survey released that family housing as a type, should be more considered in designing type (1) the possibility of the spatial modification of the design and the addition of floors may help to increase the satisfaction with the house in type (2) compared to type (1). Single-family housing gives flexible building for future growth and development. They have the ability for extending their homes horizontally and vertically.

b. Enhancing outdoor spaces: Type (1) has many scores in stability items except integration with the environment. Which led to conclude that there is a need for organizing outdoor spaces between buildings for reaching a good level of integration between the house and the surrounding.

c. Enhancing residents' satisfaction with housing units: although type (1) has many scores in two continuity items: adaptability of the neighborhood, and neighborhood satisfaction. However other items have less score compared to type (2): Adaptability of the house, home satisfaction, and environmental quality. Which led to conclude that type (1) needs much development at the architectural level, to produce qualitative residential buildings that increase houses' environmental and adaptable qualities to increase home satisfaction among the residents.

d. Considering people's participation in the design: Type (1) has many scores in fairness in all items except participation in the design because most of the surveyed houses are pre-designed apartments. Adapting relevant strategies of participation should solve this problem.

Finally, the main finding of the study sustains that multiplicity enhances the contemporary neighbourhoods in Palestine in terms of socio-cultural adequacy. It can be a natural continuity to the traditional approach of multiplicity (see Figure 1) in contrary to rigid approaches like singularity. This finding encourages planners and architects to keep learning from traditional design for better contemporary solutions [1, 16]. Moreover, the theoretical framework of that extracted in this paper (refer to Table 1) is a suitable tool for assisting neighbourhood design based on social sustainability that can be also examined on other types of housing besides those in this study.

6. Conclusions

The study develops a theoretical framework for assisting neighborhood design based on social sustainability. Three values of social sustainability are extracted: stability, continuity, and fairness. Each value has several factors that were detailed in the introduction. Through the study, two main types of residential neighborhoods in Palestine were analyzed to explore the availability of social sustainability values in each of them: Type (1): neighborhoods based on spontaneous growth of multifamily housing. And type (2) neighborhoods based on systematic repetition of single-family housing. The results of the study sustain the potential of multiplicity in the housing environment for satisfying most of the social sustainability factors because it enhances the neighborhood with a unified, flexible, and accessible environment.

The main foundation of the study sustains that the residents' satisfaction in type (2) increases at the level of the single building, but the residents' satisfaction in type (1) increases at the level of the residential neighborhood. Hence, there is a need for designing neighborhoods based on multiplicity that concedes the satisfaction of house units to combine the benefits of both settlement types. This type of neighborhood should prove a successful way to achieve all the conditions of social sustainability at the level of house-unit and the level of the residential surroundings. Hence, involving people in the design process through participation can help to design more sustainable residential neighborhoods in the future.

Finally, it is recommended that architects and planners consider the future design's ability to adapt to social needs by studying housing forms, shapes, and types and provide creative solutions that can adapt to different economic, social, and environmental needs. It is also recommended to do further research on innovative design for affordable and sustainable housing in Palestine. Further studies can also deal with social relations in the housing environment on both architectural and urban scales, including pedestrians' streets, collective spaces and squares. It is hoped that these fields of the search will assist in coherent social relations and build a much more comfortable and responsive housing environment. It is also recommended to do further studies and experiments about improving family housing to improve management of this type and integrate it into the surrounding environment instead of designing it in isolated zones.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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