THE QUALITY OF SOCIAL HOUSING: EVALUATION OF USER SATISFACTION. THE CASE OF THE 670 SOCIAL HOUSING UNITS IN ORAN, ALGERIA

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Abstract: *Improving people's quality of life depends on the quality of their housing. Nowadays, countries around the world attach great importance to this issue. This article aims to analyze the discourse of social housing residents in Oran. Using the qualitative method of Post Occupancy Evaluation, the goal is to highlight the gaps between the representations that users have of their apartments, which they aspire to have, and the architectural quality of the housing they live in. The objective is to help propose responses that contribute to enhancing the architectural quality of housing. The analysis of our survey, carried out using SPSS statistical software, enabled us to conduct various analyses relating to qualitative variables. It also enabled us to evaluate the influence of various aspects of housing on satisfaction.*

Keywords: *Post Occupancy Evaluation, quality, residents, social housing, users.*

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Introduction

The home is the first place where inhabitants can truly blossom, renew, and reconnect with themselves. It reveals part of the occupant's personality, "like a skin that breathes, separates and exchanges" [1]. Contrary to the ideas defended and imposed by the proponents of the modern movement, such as Le Corbusier, who advocated the internationalization of a universal concept of housing, this research is in line with the current of thought asserting that housing is a veritable cultural receptacle [2-5], that must be designed to accommodate and reflect the unique lifestyle of each family.

The user-related architectural space implies a social fact that only takes on meaning when placed in a specific context. This context defines it as a physical and cultural design object [6]. Hence the question of the spatial organization of housing, particularly from modern history to the present day, is based on the assumption of coherence between the designed space and the values of society. The dialectical relationship of the private spatial unit and the collective housing unit to their immediate environment is considered in a social dimension that considers the household and daily practices [7]. It is in this context that the interior space of the dwelling and the surrounding space constitute a spatial register[1] encompassing the needs and expectations of users, which plans and facades materialize. Examples of this are the paintings and photographs that decorate interiors and provide information about the objects of civilization[2]. Of course, several parameters highlight the potential gap between designed and lived space, such as how rooms are laid out and arranged, their relationship with the outside world, how the home is accessed, joint ownership, etc [8].

Whether socialist or capitalist, public housing policy differs from country to country, its production depends

[1] The term spatial register is used here to describe how the various spaces fit together to meet the requirements of the home's inhabitants.

[2] Common civilization objects refer to material items frequently used in the daily life of a given culture, such as traditional tools, decorative objects, handicrafts, etc. They represent important aspects of a society's culture and traditions.

mainly on government initiatives. Thanks to the public housing strategy, the institutions concerned have established the right of Algerian families to own their own homes in Algeria [9]. This right is one of the results of the housing policy implemented by the country's authorities since the 1980s. It turns out, however, that mass-produced social housing absorbs a significant proportion of the State's cash flow, which it has difficulty making profitable [10].

Moreover, from the 1970s onwards, the demand for housing became large and urgent [11]. To meet this demand, the state resorted to the industrialization of construction; several construction mechanisms and techniques were imported to build many houses during this decade. However, the social housing built in Algerian cities does not yet meet the needs and desires of the Algerian family [12]. The ZHUN[3] formula is implemented as part of urban planning without considering users' socio-cultural characteristics [13]. The non-correspondence of collective housing with the Algerian family's way of life has been raised from then until now, not to mention the cramped conditions of the dwellings and the often-high number of people per household, which remain among the basic causes of their unsuitability [14].

Users have tried to be flexible with this production by making modifications that give them more surface area both inside and out [15]. On the inside, these transformations were appreciated by the occupants. From the outside, this remodeling has harmed the city's image as a whole. The quantity-quality factor was not taken into consideration, even though rapid construction aimed to de-clutter the housing stock [16], as confirmed by C. Moley [17], "Housing construction is one of the most important factors entering into the composition of the human environment and especially the urban environment".

To assess residents' satisfaction with their housing, the approach adopted in this study is the Post Occupancy Evaluation approach, based on the three crucial socio-spatial dimensions that qualify collective housing, namely micro-space: the interior space of the dwelling and its relationship with its occupants. Meso-space: this encompasses the common areas shared by the occupants, and macro-space: this is the immediate environment that includes the individual and the city's human environment. Post-occupancy evaluation is used to study and assess a constructed space that has been previously exploited over a given period, facilitating the task of deciphering the transformations induced between the mutual interaction of man and his space to be inhabited [18]. This article aims to arrive at results that can shed light on the vulnerabilities of the designed space and how to modify them concerning the lifestyle of the target society. Indeed, our concern is with the following question: what factors influence inhabitants' satisfaction with their housing?

Given that housing represents the essential locus of social and family interaction, the occupant appears as someone who inhabits a whole environment even before occupying a particular building [19]. Through recent studies, we aim to highlight that the relationship between space and habitat naturally flows from another interaction: that between space and inhabitants. Thus, our study emphasizes the confrontation of two relationships: the relationship between the design of housing and the relationship between the use of its space. This implies that our inquiry is built around two interdependent concepts. The conclusions drawn from a post-occupancy evaluation provide a solid basis for making appropriate decisions regarding improvements to the building in order to better satisfy the needs of the occupants.

The object of this study is the 670 housing estates (LPL)[4] in Hai El Sabah. Inhabitant questionnaires and direct observation were used as a technique for gathering information and finding out how satisfied households were with their housing [16]. The housing studied was selected using the systematic sampling method, which selects a representative sample of the target population by choosing items at regular intervals from a random starting point. This ensures a fair distribution of individuals in the sample to facilitate data analysis.

[3] ZHUN (Zones d'Habitat Urbain Nouvelles - New Urban Housing Zones) ZHUNs in Algeria are housing zones designed to create new residential districts to meet the urgent housing crisis and offer modern infrastructure.

[4] Logement Public Locatif (LPL) in Algeria is a program established by the government to provide housing for low- and moderate-income households on a long-term rental basis.

Materials and Methods

As early as the 1960s-1970s, countries such as the United States, Great Britain, Canada, and France began to collect information on Post Occupancy Evaluation (POE) through questionnaires, interviews, analyses, and in-depth observations, which they made available to researchers to study users' impressions of their homes [20]. However, Post Occupancy Evaluation was not considered a discipline in its own right until the 1980s. Since then, theory in this field has undergone a remarkable evolution in analysis procedures, and techniques, including in terms of applications [21].

While architectural critics tend to focus on aesthetics and construction evaluation, POE focuses on the evaluation of occupant satisfaction, taking into account their needs and desires. POE aims to integrate the design process for the built environment into the scientific research cycle. Occupants express any architectural aspects of the building that do not correspond to their needs. This feedback is taken into account by specialists when making improvements or designing future architectural projects [22].

This being said, in our case study, the POE approach is carefully adopted in a social housing context; to assess certain parameters of satisfaction and dissatisfaction of households in the 670 social housing estate, and to determine the strengths and weaknesses of the design in its social and environmental context.

Satisfaction, as a subjective element, is based primarily on the confirmation of users' desires. The paradigm for conceptualizing satisfaction comprises three parameters: comparison, expectations, and perceptions. Based on this consensus, dissatisfaction arises when the quality experienced is lower than the quality expected; in other words, satisfaction will be confirmed in cases where users state that the quality experienced is higher or outstanding compared to the quality expected; the third position is that of equality between the quality experienced and the quality expected, where users express their satisfaction to a rather normal degree [23].

The survey process

The survey was conducted in January 2022 in a social rental housing estate in Oran. Built in 2009, the housing estate comprises nineteen blocks, ranging in height from the ground floor plus five stories to the ground floor plus ten stories. The majority of units have suffered tangible damage[5], both inside and out, affecting even the spatial configuration of living spaces.

Our survey aims to examine in depth the link between the user satisfaction variable and the other variables in the various sections that make up our questionnaire. These variables are organized as follows: physical, behavioral, and environmental, in relation to the housing studied. The information collected was analyzed using SPSS[6] statistical analysis software (statistical processing software for the social sciences). This software is used by researchers to analyze and interpret statistical data in the social sciences. It enables a variety of statistical analyses to be carried out and the results to be presented in a visual and comprehensible way once the questionnaire has been encoded.

The questionnaire has been organized into five distinct sections, each of which includes questions focused on measuring satisfaction, thus facilitating data analysis. The first section is devoted to user identification, while the second deals with the degree of household satisfaction with the design and layout of the interior space. In the third section, questions are asked about the immediate environment and the social life of the inhabitants, while the fourth section deals with user needs and various spatial modifications. Finally, the fifth section deals with socio-spatial and cultural practices. We have chosen questions that are consistent with the Post Occupancy Evaluation method and also compatible with the principles of the SPSS software. We applied the systematic sampling method (10% of the population was surveyed), which means we selected a sample of

[5] Over time, multi-family dwellings suffer a variety of degradations, including those caused by dampness (mold, mildew, stains), damaged interior finishes (walls, paintwork, floors), problems with equipment (plumbing, heating, ventilation) and natural wear and tear due to lack of proper maintenance.

[6] (Statistical Package for the Social Sciences), a software package used for statistical analysis.

67 dwellings in our survey[7]. The dwellings ranged from two-roomed to three-roomed, and the selection of dwellings studied in this housing estate enabled us to obtain more reliable results. When the individuals were interviewed, 87% were men and 13% were women, with an age difference ranging from 23 to 77. Each dwelling comprised a single household, with the number of people per household ranging from 1 to 7, shared between men and women. The households surveyed stated that they had always been tenants, from the time the dwellings were distributed in 2009 to the present day.

The degree to which people are satisfied with their housing is crucial in the housing evaluation process. It also helps define the mutual interaction between the user and his housing. Satisfaction analysis enables us to determine one or more groups of inhabitants living in their homes in different ways, with distinct positions according to certain factors such as monthly salary, cultural level, neighborhood and socio-professional status [24].

Case study: 670 social housing estates

The 670-unit housing estate, initially a social rental project, is now part of the 1.000-unit social rental housing program. It is located in the Hai El Sabah commune, Daïra Bir El Djir, to the east of the city of Oran. The housing estate comprises 19 blocks (4 angular blocks and 15 linear blocks), with the main and rear facades treated differently. The blocks were designed on the principle of four dwellings per level, with identical shapes and living areas ranging from 45.25 m² (square meter) to 72.4 m² (Table 1). Construction work began in 2003, under the responsibility of the project owner OPGI (Office de Promotion et de Gestion Immobilière)[8], and the first completed units went into operation in 2009. The buildings have a self-supporting reinforced concrete skeleton.

Table 1. Type of buildings

N°	Headings	Building type	Building type	Building type	Building type	Building type	Building type	Building type	Building type
1	Type	**B**	**B trade**	**C**	**C trade**	**D**	**E**	**A trade**	Total
2	Number of blocks	2	5	5	3	2	1	1	19
3	Number of levels	Six-storeys building, with ground floor	Six-storeys building, with ground floor	Eleven-storeys building, with ground floor	Eleven-storeys building, with ground floor	Eleven-storeys building, with ground floor	Eleven-storeys building, with ground floor	Six-storeys building, with ground floor	
4	Form of blocks	Bar	Bar	Bar	Bar	Angular	Angular	Angular	
4	Number of housing per level	4	4	4	4	4	4	4	28
5	Number of housing Ground floor	4	4	4	2	4	4	4	26
6	Number of housing per block	24	24	44	42	44	44	24	246
7	Total number of housings	48	120	220	126	88	44	24	670
8	Average living area F2	45.25	45.25	45.25	45.25	55.04	49.85	55.04	
9	Average living area F3	60.05	60.05	60.05	60.05	70.91	72.40	70.91	
10	Number of commercial premises per block	0	5	0	5 6 7	0	0	4	27
11	Number of commercial premises	0	25	0	18	0	0	4	47

[7] To do this, we divide the total number of dwellings in the housing estate by the desired sample size, giving us a systematic interval. We then select a dwelling at random as a starting point and survey all the dwellings at regular intervals defined by the systematic interval until we reach the desired sample size.

[8] OPGI (Office de Promotion et de Gestion Immobilière) in Algeria is a public institution responsible for promoting and managing real estate projects, particularly public housing.

The total surface area of the plot is 22954.6 m², of which the built area is 11975.9 m² and the open space is 2093.9 m², with the remainder devoted to parking space with a surface area of 885.5 m². The housing estate is located in a district with a somewhat strategic position, as the presence of public transport (bus lines and the tramway line) facilitates travel to the various districts, particularly the city center, plus the factor of being close to the university and surrounded by all the necessary equipment (Figs. 1,2).

Fig. 1. *Site plan and mass plan, 670 LPL housing estate, Oran*

Fig. 2. *Views of the facades, 670 LPL housing estate, Oran*

Questionnaire survey: residents' first impressions

According to the questionnaire, residents of the 670 housing estate report anomalies and shortcomings not only in their interior spaces but also in the immediate exterior landscape. On the inside, the designed spatial configuration raises the concern of inadequacy for different spatial and social activities. The cramped nature of the rooms, the poor orientation of the wet areas, and the number of rooms, which is often insufficient for the number of people per household, led users to make certain transformations to the floor plans, which had an impact on the quality of the dwellings envisaged by the practitioners[9] , yet the operation of concordance put in place by the inhabitants was done primarily to meet a need for a socio-spatial practice. The transformations to the layout that we were able to reveal during our observations inside the dwellings, were carried out by the inhabitants with two important measures in mind: family structure and social requirements that evolve with changing lifestyles.

The immediate exterior landscape has been affected by several problems due to a lack of regular maintenance. According to residents, the appearance of the outdoor environment is of paramount importance to their physical and moral well-being. They hope to one day see better-maintained green spaces, offering play areas that meet safety standards for their children. Indeed, improving these outdoor spaces would go a long way toward creating a more pleasant environment conducive to their quality of life.

"We hope one day to have a well-appointed outdoor space with play areas for our children. The presence of green spaces in our housing estate comforts me" (a resident of the 670 housing estate).

Results and Discussion

Post-occupancy evaluation is the foundation of our study and is valid for a building in a cycle of use, which is the case of this study. The gap between design and use of the space to be inhabited requires some kind of evaluation to make it comprehensible. To this end, POE makes it easier for us to grasp the complexity of designing a space that must meet users' needs, with a logic that respects their expectations on both scales: interior and exterior. The mechanism of this approach makes it possible to determine the quality of housing by knowing the constructive parameters that must be adapted to the doctrines of residential satisfaction.

The "SPSS" software enabled us to carry out several analyses, namely the bi-variate analysis of qualitative variables through correlation, and the bi-variate analysis of qualitative variables through cross-tabulation. The notion of correlation is used to determine whether there is a relationship between two variables, whether quantitative or qualitative. Spearman's correlation coefficient is a non-parametric statistical measure used to

[9] Practitioners refer to professionals involved in housing and urban planning, such as architects, urban planners, civil engineers, property developers, construction project managers, real estate agents, and other professionals in the sector.

assess the relationship between two ordinal variables. It compares rankings of observations rather than actual numerical values and ranges from -1 to 1. It is robust to outliers and non-normal distributions, making it suitable for non-parametric data analysis. The two-tailed significance of Spearman's Rho Test assesses whether or not this correlation is statistically significant.

Evaluation of initial rent typology with housing satisfaction

The cross-tabulation (Table 2) helps us assess residents' satisfaction with the variable (type of initial rent). Analysis of the results shows that residents who previously lived in multi-family dwellings are divided into two groups: one group, who lived in dilapidated dwellings, is fairly satisfied and finds the current dwelling better than the old one; the other group, who lived in dwellings that were in average condition, is very dissatisfied, as the current dwelling is no more comfortable than the old one. On the other hand, those who have lived in individual dwellings are rather dissatisfied, declaring that they lived in living conditions (hygiene, size of dwelling, state of outdoor environment, etc.) more suited to their lifestyle than the collective dwelling. This result confirms that the initial rent has a strong influence on residents' satisfaction. As for legal status, all users are tenants, so it's unlikely to have much influence on resident satisfaction.

Table 2. Cross-tabulation of initial rent typology and housing satisfaction

Type of initial rent	Housing satisfaction			Total
	Very dissatisfied	Somewhat dissatisfied	Somewhat satisfied	
Individual	19	22	10	51
Collective	6	4	6	16
Total	25	26	16	67

Evaluation of housing satisfaction with the initial rental location

The results in Figure 3 show that all the residents of the 670 housing estate lived in the city before moving to the new estate. As a result, the majority of users are dissatisfied with their current dwellings, as they used to live in inner-city areas where the majority of public services are available. In this sense, the situation of the old home has a very strong impact on user satisfaction.

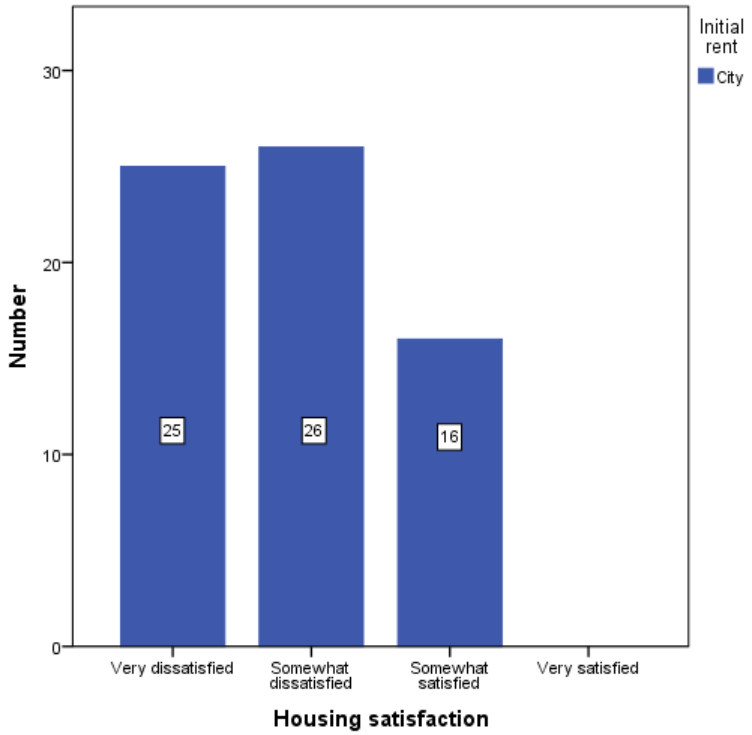

Fig. 3. satisfaction with the housing in relation to the location of the initial rent

Evaluation of housing satisfaction in relation to housing cost, year of installation, income of the head of household

In relation to the correlative analysis between satisfaction and the cost of rent (Table 3), the two-sided significance is less than 5%, so we have a positive correlative relationship between these two variables, with Spearman's correlation coefficient equal to 37%, at which point the correlation is medium. On the other hand, the correlation between satisfaction and the other two numerical variables (year of installation and monthly income of the head of household) is not significant, as the two-sided significance is greater than 5%, so these two variables do not have a significant influence on user satisfaction (Tables 4,5).

Table 3. Bivariate correlation analysis: Spearman's Rho test

			Cost of rent	Housing atisfaction
Spearman's Rho	Cost of rent	Correlation coefficient	1.000	0.373**
		Sig (bilateral)	.	0,002
		N	67	67
	Housing satisfaction	Correlation coefficient	0.373**	1.000
		Sig (bilateral)	0.002	.
		N	67	67

**. The correlation is significant at the 0.01 level (bilateral).

Table 4. Bivariate correlation analysis: Spearman's Rho test

Correlations

			Housing satisfaction	Year of installation
Spearman's Rho	Housing satisfaction	Correlation coefficient	1.000	0.206
		Sig (bilateral)	.	0.094
		N	67	67
	Year of installation	Correlation coefficient	0.206	1.000
		Sig (bilateral)	0.094	.
		N	67	67

Table 5. Bivariate correlation analysis: Spearman's Rho test

Correlations

			Housing satisfaction	Monthly income
Spearman's Rho	Housing satisfaction	Correlation coefficient	1.000	0.153
		Sig (bilateral)	.	0.215
		N	67	67
	Monthly income	Correlation coefficient	0.153	1.000
		Sig (bilateral)	0.215	.
		N	67	67

Correlation between regret at leaving the housing and satisfaction with the housing

According to the results obtained in (Table 6), regret at leaving the housing has a certain influence on housing satisfaction. Bilateral significance is less than 5%, so we have a negative correlation between these two variables. The strength of this correlation is medium, with a coefficient of 40%. In other words, residents who are dissatisfied with their cells will not regret leaving their homes. For those who are quite satisfied, they will regret leaving their homes. This is mainly due to the suitability of the interior configuration of the dwelling to their needs, although this attachment has no relation to the immediate external environment, according to the residents' statements.

"I live in a housing that doesn't meet all my needs, and I'm dissatisfied with it. That's why I'll never regret leaving it" (a resident of the 670 housing estate).

"*I've adapted the spatial layout of my home to suit my needs, and right now I'm pretty happy with the reconfiguration. That's why I'll have regrets if I have to leave my housing, but these regrets are in no way*

linked to the neighborhood or the immediate external environment of the housing estate" (a resident of the 670 housing estate).

Table 6. Bivariate correlation analysis: Spearman's Rho test

			Housing satisfaction	Regret about leaving the housing
Spearman's Rho	Housing satisfaction	Correlation coefficient	1.000	-0.402**
		Sig (bilateral)	.	0.001
		N	67	67
	Regret about leaving the housing	Correlation coefficient	-0.402**	1.000
		Sig (bilateral)	0.001	.
		N	67	67

**. The correlation is significant at the 0.01 level (bilateral).

Evaluation of interior space satisfaction

The correlative analysis between housing satisfaction and room satisfaction in (Table 7) confirms that there is a strong relationship between these two qualitative variables, with a two-sided significance of less than 5% and a correlation coefficient of 76%. In other words, user satisfaction in the various rooms has a remarkable impact on satisfaction with housing. According to the respondents' statements, representative spaces such as the living room and kitchen are more important than other spaces in terms of satisfaction; it is through the spatial distribution of these spaces, and their surface areas, that a certain level of interior satisfaction can be achieved.

"*I spend more time in the kitchen and living room because these are the two spaces where I carry out the majority of my activities. For me, these two rooms are of considerable importance for our socio-spatial practices*" (a resident of the 670 housing estate).

Table 7. Bivariate correlation analysis: Spearman's Rho test

			Housing satisfaction	Satisfaction with interior space
Spearman's Rho	Housing satisfaction	Correlation coefficient	1.000	0.769**
		Sig (bilateral)	.	0.000
		N	67	67
	Satisfaction with interior space	Correlation coefficient	0.769**	1.000
		Sig (bilateral)	0.000	.
		N	67	67

**. The correlation is significant at the 0.01 level (bilateral).

Evaluation of satisfaction with spatial distribution, room grouping, shape, and surface area

The cross-tabulation (Table 8) shows that residents are quite satisfied with the spatial distribution, although a significant number are very dissatisfied with their housing. They did, however, express satisfaction with the room layout. When it comes to grouping rooms together, we have a number who are rather satisfied with the hall as a connecting space between the different areas. The rest of the users also prefer to have a hall in their housing, but on the other hand, they are rather dissatisfied with the housing they currently live in. Respondents are quite satisfied with the shape of the rooms, and at the same time very dissatisfied with their area. Users' statements affirm that the area of rooms poses a major concern in their daily lives, and all three variables influence satisfaction with housing, knowing that the ratio between them is high, especially in the case of the composition of the Algerian family, which demands more spacious rooms with a central articulation space that slightly resembles the patio of the traditional house, based on very clear spatial geometric forms.

"The rooms are well distributed, the shape of the spaces is not bad, but what bothers me most is the cramped nature of the rooms" (statement by a resident of the 670 housing estate).

Table 8. Cross-tabulation of spatial distribution, room grouping element, shape, and area with housing satisfaction

Housing satisfaction	Spatial distribution (no)	Spatial distribution (yes)	Room grouping (corridor)	Room grouping (hall)	Room grouping (both)	Room shape (no)	Room shape (yes)	Area (no)	Area (yes)
Very dissatisfied	3	22	5	17	3	2	23	25	0
Somewhat dissatisfied	4	22	1	18	7	2	24	26	0
Somewhat satisfied	0	16	3	9	4	0	16	16	0
Very satisfied	0	0	0	0	0	0	0	0	0
Total	7	60	9	44	14	4	63	67	0

Degree of boredom in the 670 housing estate

Based on the results of (Fig. 4), users who are rather dissatisfied with their housing find it very boring due to several factors that have hurt the quality of the immediate environment, including dirtiness, lack of outdoor lighting, and lack of security. These are the main reasons for the deterioration of the exterior. This state of affairs has led to the emergence of another factor that has exacerbated the further deterioration of the estate's external landscape: the gathering of young people at the foot of buildings at all times of the day, a behavior perceived as a source of moral deviance[10]. For these reasons, residents are calling for a cleaner environment that meets their needs for a healthy social life, free from harmful factors.

"The outside environment of the housing estate presents several problems, including a permanent lack of maintenance, which has led to a situation of dirtiness. It leaves me with a feeling of deep boredom with the estate" (statement by a resident of the 670 housing estate).

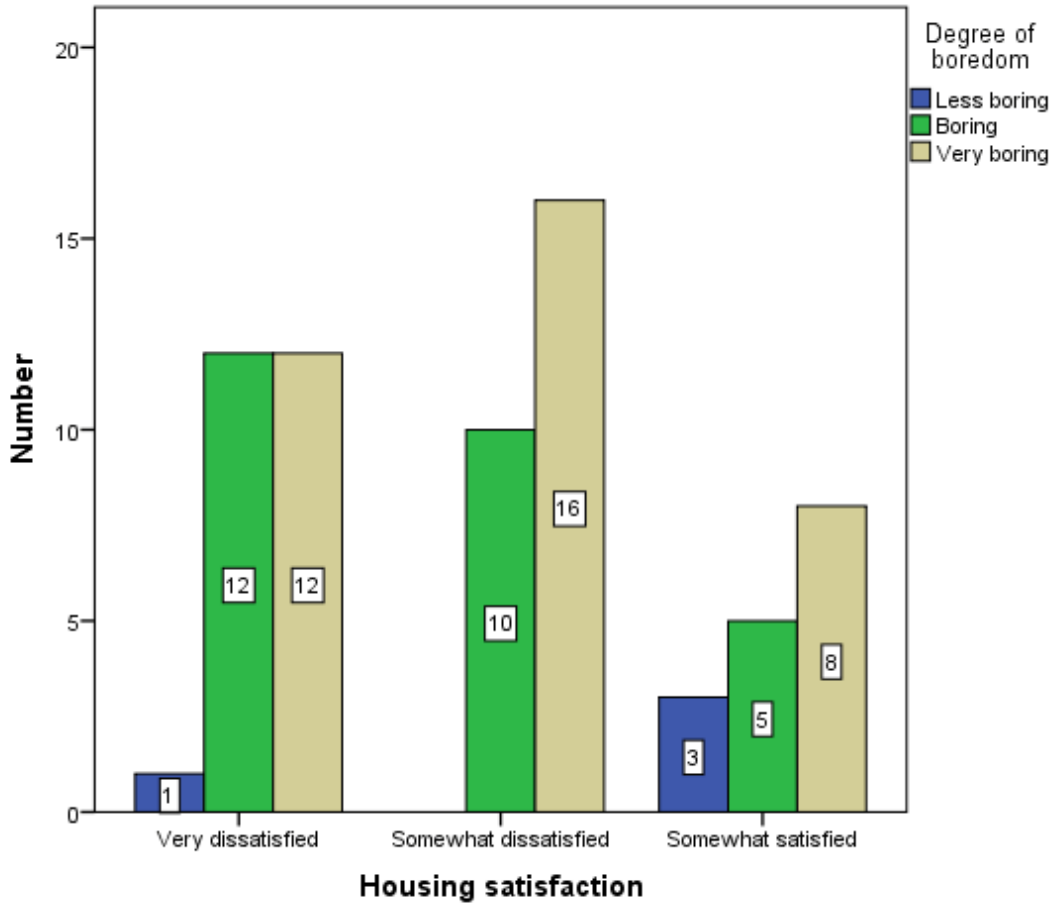

Fig. 4. *Satisfaction with housing and degree of boredom in the housing estate*

[10] The term (moral deviance) suggests that this behavior is considered to go against accepted social and cultural norms in society. This may include disruptive activities, harmful behavior, breaking the law, or any other action deemed inappropriate by the local community or society as a whole.

Relationships between neighbors: the impact of relationship type on social life

Graph (Fig. 5) shows that 94% of respondents have a relationship with their neighbors. This relationship varies from friendly to helpful. They declare their satisfaction with this social aspect, despite the existence of several shortcomings in the social environment of this housing estate. Good neighborliness has helped to consolidate the social structure of the estate, with the majority cooperating to solve many of the estate's sometimes technical problems on their own.

"We often help each other to solve certain technical problems, strengthening the bonds between us. The relationship of mutual aid in our housing estate is really strong, and we maintain good relations with our neighbors" (statement by a resident of the 670 housing estate).

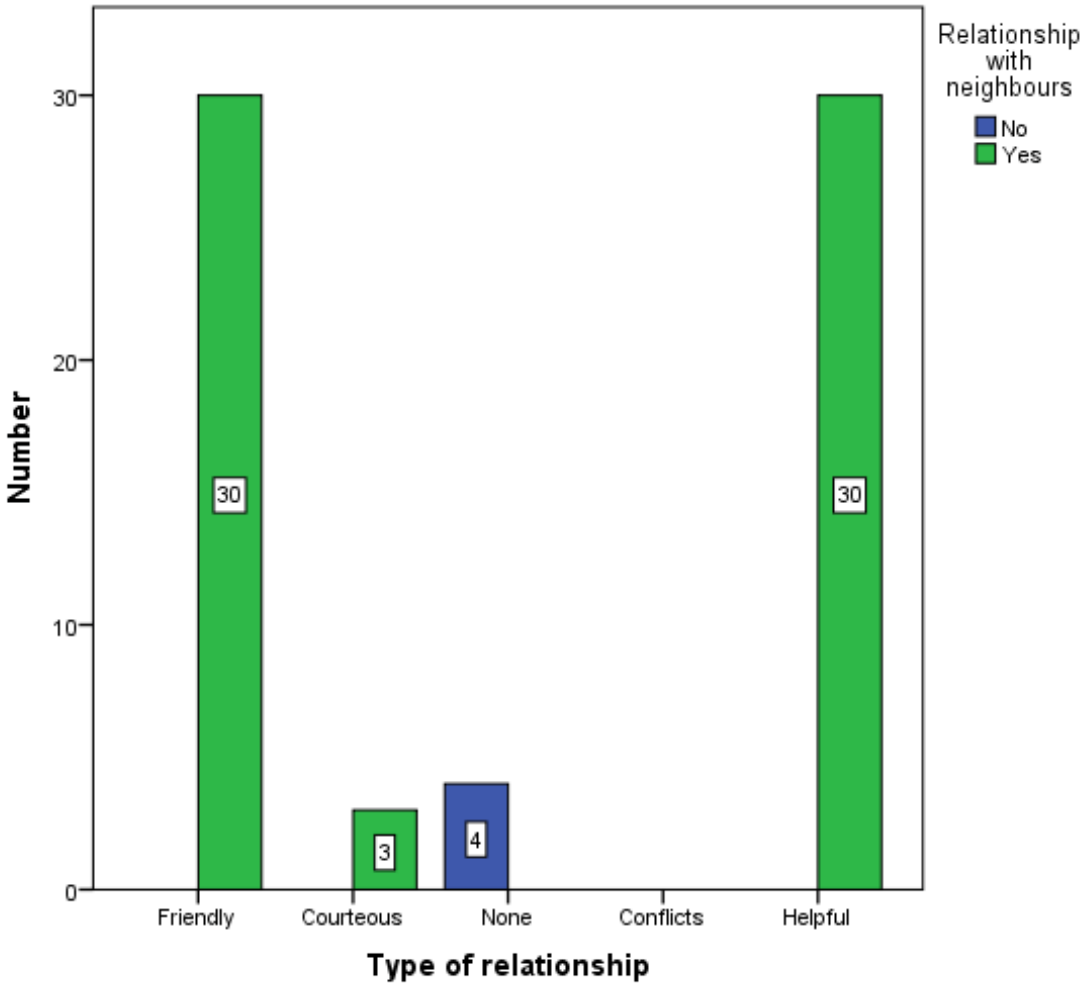

Fig. 5. *The existence and nature of a relationship between neighbors*

Explaining the results: an interpretative action

User satisfaction remains a preliminary estimate based on their needs and expectations. Each household expressed its level of satisfaction by answering the question "very dissatisfied, somewhat dissatisfied, somewhat satisfied, very satisfied".

We followed the process of the Quebec Statistical Institute. It is the users who participate in the testimonial on usage, satisfaction, and desires. The main objectives of the survey were, firstly, to identify the most and least satisfying points, and secondly, to gather the necessary information to enable us to carry out a study of the relationship between household satisfaction and certain socio-spatial parameters [25]. None of the respondents answered "very satisfied", which reflects the quality deficit in collective social housing, and the latter needs to be restructured around the measures and requirements of the inhabitants.

Housing quality: between theory and experience

The main parameters of theoretical housing quality can be summed up in functional, technical, architectural, aesthetic, and socio-environmental quality. In terms of functionality, users criticized the grouping of rooms, the positioning of wet areas, and the lack of closet space in some units. Technical quality remains inadequate, with dampness in some rooms due to the poor orientation of the blocks, the lack of lighting, and natural ventilation in the bathrooms, including the lack of maintenance for sewage disposal. In terms of architectural and aesthetic quality, the residents have managed to resolve some of the criticized aspects on their own by making interior alterations, repainting the various rooms, repairing cracks, renewing flooring, installing earthenware in kitchens and bathrooms, etc. The socio-environmental quality has been criticized too much in terms of the lack of green space and play areas, but on the other hand, they have appreciated the location of the housing estate, the availability of public transport, as well as the neighborly relationship based essentially on cooperation and mutual understanding. The comparison between theoretical quality and the elements criticized by users shows us the gap between designed and lived housing. As D. Piché [26] stated, *"A quality architectural program for a building must be based on a good understanding of the needs of the people and organizations housed in it, as well as the interrelationships woven by the latter with the physical environment in the daily uses they make of it"*.

Conclusion

Evaluation of user satisfaction is not an end in itself. However, this study has shown that improving housing programs requires taking into account the desires of future residents. It is important to define the various needs and desires to achieve their satisfaction. From the initial results of this evaluation, it's clear that housing quality boils down to the quality of the spaces and the quality of use. All quality-measurement operations take users' perceptions as their starting point; listening to users is the only way to define their level of satisfaction with any given product. The questionnaire itself will not improve the quality of the housing, but rather the analysis of the information and results obtained will enable us to deduce the weaknesses and advantages of the housing as perceived by the residents.

After gaining their independence, families from different backgrounds and with varying incomes set about transforming their housing to suit their respective lifestyles [27]. A person who feels satisfied with their housing situation will maintain it as long as it continues to meet their needs. In the event of dissatisfaction, this can lead to two alternatives: either an adaptation or reorganization of the current situation or a relocation or change in attitudes towards the current housing. This leads to a mismatch between housing-related attitudes and behaviors [28]. From the results of the analysis, it emerges that a large number of residents express dissatisfaction with the layout of their housing. The most criticized aspects of housing interiors are related to technical problems, use of space, functionality, and behavioral aspects. An analysis of the external and social environment reveals that the majority of residents surveyed have an unfavorable opinion. Families are particularly sensitive to damage to communal areas such as playgrounds and green spaces, and to sewage disposal, which emerge as a major concern among users' demands. On the whole, none of the respondents was very satisfied, which can be explained by the fact that social housing is often perceived as a secondary option to individual housing. In terms of architecture, the relentless repetition of the same cell type in social housing creates a regrettable rigidity and monotony. These aspects have led to harsh criticism of the social life in housing estates.

Nowadays, it is crucial to pay greater attention to the links between households and their material and social environment when planning housing. It would be insufficient to simply propose different types of habitats without considering the actual inhabitant when designing the space he or she will inhabit. In this context, involving residents in the design phase to find out about their needs and desires, while developing a spirit of communication between them and practitioners and decision-makers, helps to provide effective responses to the problem of the gap between the housing designed and the housing experienced. Researcher C. Belbacha-

Merouche [29] stresses the need to improve the quality of social housing to avoid the constant changes it undergoes, which hurt the building and the urban environment. This study highlights a crucial new line of thinking: exploring effective mechanisms for encouraging resident participation. To implement this approach, it is imperative to integrate a new dimension - that of the user - into the decision-making and management processes of housing, to ensure optimal housing performance.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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