Using neighborhood observation to support public housing tenants' empowerment

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Abstract

Although public housing is often described as a negative and stigmatized environment, tenants living in such an environment can cultivate a positive sense of community, which enhances their individual and collective well-being. The present study describes the second phase of a large action research, aiming to facilitate the empowerment of public housing tenants acting as peer-researchers Following a *Photovoice* phase, this second phase focuses on the development and first implementation of a participatory observation method as a

tool for evaluating their collective environment fit. A group of nine tenants contributed to develop and later completed an observation grid. The observations were then discussed in decision-making sessions. The participatory observation method proved useful in supporting tenants in their reflection process, promoting the depiction of a nuanced portrait of their residential environment while also prioritizing capacity building. Results are currently used to inform an action phase in which tenants are taking increasingly more power. Triangulating the results from multiple sites is needed to establish more firmly the added-value of this observation method in a larger research project. Key challenges and lessons learned are described in a reflective section, sharing experiential knowledge with researchers that consider using a similar method.

Keywords

participatory research, observation method, public housing, residential environment, well-being

Introduction

Diverse areas of research such as urban planning (Jackson, 2003), public health (Shaw, 2004), or psychology (Lawrence, 2002) are interested in the association between the environment and well-being. This relationship is especially significant for locally-dependent underprivileged groups (Horelli, 2006). Among these groups are people in public housing who spend a great proportion of their time at home and in the surrounding neighborhood due to financial constraints (Apparicio & Séguin, 2006). Several studies depict a negative portrait of public housing tenants' well-being, including stigma, social exclusion, as well as mental and physical health problems (e.g. Digenis-Bury, Brooke, Chen, Ostrem, & Horsburgh, 2008; Manjarrez, Popkin, & Guernsey, 2007; Palmer, Ziersch, Arthurson, & Baum, 2004; Rivest, 2006). Another line of research however tells a more nuanced story of the influence of public housing environment on tenants' well-being (e.g. Manzo, 2014; Manzo, Kleit, & Couch, 2008; Sinha & Kasdan, 2013; Tester, Ruel, Anderson, Reitzes, & Oakley, 2011; Tester & Wingfield, 2013). According to these studies, several tenants experience happiness, and develop a positive sense of community. In the last decades in the US, housing policies have been characterised by disinvestment, demolition and privatization, favoring the displacement of low-income people from public housing into mixed-income developments (Sinha & Kasdan, 2013). Canada has been implementing similar policies (August, 2016; MacKinnon, 2008), with public housing representing a smaller proportion of the housing stock year after year (Gurstein, Patten, &

Rao, 2015). Several authors suggest harnessing tenants' sense of community to empower them in taking power over the improvement of their environment as an alternative to demolition and displacement (Manzo, 2014; Sinha & Kasdan, 2013; Tester et al., 2011). But how could this be done? Action research, with its focus on producing relevant knowledge and transformative action (Bradbury Huang, 2010; Smith, Bratini, Chambers, Jensen, & Romero, 2010) seems to hold strong potential to achieve such an objective.

The present article describes a participatory observation research method, part of a larger action research study, that ultimately aims to support public housing tenants' empowerment. The method is based on principles from multiple theoretical or practical approaches: collective environment fit, peer-research, and observation methods.

Collective environment fit

Adhering to an interactional standpoint on the subject (Amérigo & Aragonés, 1997), most researchers agree that residential environment influences well-being through residents' interaction with their environment. High levels of well-being are expected when the environment offers opportunities to achieve one's goals and fulfill one's needs (Moser, 2009). This has been formalized in concepts such as person-environment fit or person-environment congruence (Kahana, Lovegreen, Kahana, & Kahana, 2003; Stokols, 1979). Horelli (2006) expanded these notions with the concept of collective environment fit. She identified a set of everyday life structures that may bring forth collective fit when appropriated by people from locally-dependent groups: physical (e.g. nature, meeting

places), functional (e.g. services, community organizations), participatory (e.g., governance, capacity building), and cultural (e.g., sense of community, social capital). Collective environment fit reflects the quality of the four described structures for a specific group.

Proven efficient in mobilizing stakeholders in urban planning research (Wallin & Horelli, 2010), Horelli's heuristic model provides a synthetic framework for supporting the reflections of public housing tenants on their residential environment.

Peer-research and empowerment

Participatory action research is an important intervention mechanism used by community psychologists (Boyd & Bright, 2007) to contribute to the empowerment of marginalized individuals, who traditionally have limited decision-making power (Ozer, Ritterman, & Wanis, 2010). Participation of residents in the research process tends to motivate them in using the results for remediating problems faced by their community (Bargal, 2006; Chein, Cook, & Harding, 1948). In public health, community-based participatory research has been used with marginalized communities in improving understanding of their context and collectively designing transformative actions (Israël, Schulz, Parker, & Becker, 1998; Jagosh et al., 2012).

One way of concretizing action research is through a peer-research approach. In this method, members of the target population are considered active collaborators instead of passive participants, and are trained and supported to be involved in several stages of the

study (Guta, Roche, & Flicker, 2010). The approach is gaining in popularity and is implemented through a variety of models of practice, often mixed in a single study: advisory model (e.g., peers give advice on the research design), employment model (e.g., peers act as research staff for data collection), and partner model (e.g., peers are leaders of the project) (Roche, Guta, & Flicker, 2010). Peer-researchers are "intermediaries between the research team and their own community, able to access community spaces, and translate community knowledge." (Guta et al., 2013, p. 442). Empowerment is a documented outcome of the peer-research approach (Burns & Schubotz, 2009).

Empowerment is a process through which people take more control over the matters that concern their personal and community life (Rappaport, 1981; Zimmerman & Rappaport, 1988). Community empowerment includes an intracommunity component which is based on the residents' perceptions of social capital, sense of community, and collective ability to accomplish desired goals (Aiyer, Zimmerman, Morrel-Samuels, & Reischl, 2015).

In the present research, we aimed to support these aspects of empowerment in public housing tenants through a peer-researcher role devoted to documenting the situation in their public housing development and its neighborhood. This approach requires finding the research instruments that will provide a good fit with the peer-researchers' abilities and interests (Smith, Monaghan, & Broad, 2002).

Observation methods

In the last decade, researchers interested in the impact of residential environment on health and well-being have increasingly used quantitative observation measures instead of relying on census data alone (Schaefer-McDaniel, O'Brien Caughy, O'Campo, & Gearey, 2010). For example, more than 51 studies using such measures have been identified by Schaefer-McDaniel, O'Brien Caughy and colleagues in 2010. More recently, Nickelson, Wang, Mitchell, Hendricks and Paschal (2013) identified 31 observation tools focused on the physical aspects of neighborhood environment. Some of these neighborhood observation measures are quite comprehensive, providing a detailed profile (Schaefer-McDaniel, Dunn, Minian, & Katz, 2010).

In most studies, observers are research assistants trained to observe the neighborhood and complete the measures (e.g., Laraia et al., 2006; Weich et al., 2001; see reviews from Schaefer-McDaniel, O'Brien Caughy et al., 2010; Schaefer-McDaniel, Dunn et al., 2010). Thus, the observations are biased toward visible and easily identifiable aspects of the environment, while participatory and cultural structures from Horelli's model are invisible and therefore neglected (Schaefer-McDaniel, Dunn et al., 2010). As highlighted by Schaefer-McDaniels, Dunn et al. (2010), outsider observers might consider a situation to be problematic, while it is not for residents. Relying on insiders as observers might allow for participatory and cultural structures to be measured and adequately interpreted, providing a more ecologically valid perspective. However, insiders are rarely involved (see

for exceptions, Hoehner, Ivy, & Brennan Ramirez, 2006; Zenk et al., 2007). As recently highlighted in a comprehensive article on this issue (Martí, 2016), the integration of quantitative research methods within participatory action research has been limited to date, despite the potential of quantitative methods as "a means for improving measuring, but also learning, social debate, and mobilization" (p. 179). Still, how observation grids can concretely be integrated in action research is not specifically addressed in Martí's article.

In the present research, a group of public housing tenants acted as peers-researchers, collaborating in the design of an observation grid, filling out the grid with regards to their own residential environment and discussing their observations. This provided a detailed picture of the quality of Horelli's (2006) structures based on their experiential knowledge of their environment.

Method

Broader context of the action research project

This participatory observation research method has been developed as part of a larger action research program that aims to improve the well-being of public housing tenants through their increasing mobilization in evaluating their setting, planning the desired changes and implementing the actions they have collectively chosen. The housing development in Montreal, Canada, is made of five apartment buildings and 13 townhouses, lodging 188 family or single adult households. The first phases of the action research

project intended to produce a participatory assessment of the assets and needs of this particular public housing development, relying on the input of peer-researchers.

The first exploratory phase consisted of a *Photovoice* project where ten peer-researchers expressed themselves qualitatively on their environment and well-being (Authors, Year). The peer-researchers were recruited through posters and flyers (Authors, Year). In a second phase, the observation research method described here complemented the *Photovoice*'s perspective in a more systematic fashion, while maintaining a participatory approach. As part of the research team, each peer-researcher received a stipend ($20 for each session) in recognition of their work, and dinner or snacks were provided.

This multiphase process culminated in a collective forum mainly organized by peer-researchers where the tenants and their community partners (e.g., municipal agency in charge of the building; community organizations providing on-site services) shared the lessons learned about their public housing development and neighborhood. During this forum, attendees discussed and voted in order to develop an action plan for improving tenants' well-being. A larger peer-research group was formed and is currently taking the lead in implementing this action plan, with a decreasing presence of the research team. As Kua (2015, p. 178) eloquently stated "one of the most distinctive features of action research is that the researchers gradually let go of control so that the 'insiders' can learn how to take

charge of the process of change that their organization is undergoing, and thus guide their own developmental process".

Peer-researchers in the observation phase

Of the peer-researchers who had completed the *Photovoice* phase, eight agreed to take part in the observation phase. Two peer-researchers were dealing with family or health difficulties preventing them for maintaining their participation in the project. A new peer-researcher was recruited through word of mouth. Participants were French-speaking women, mostly aged between 36 and 55 years old, all born in Canada. Most had been living in the public housing development for 3 to 5 years. Half the peer-researchers were living alone, while the other half lived with a spouse or a child. They were unemployed although a majority was volunteering in community organizations.

Development of the observation tool

Eleven existing grids were identified and analyzed (e.g. Day, Boarnet, Alfonzo, & Forsyth, 2006; Jones, Pebley, & Sastry, 2011; Weich et al, 2001; Zenk et al., 2007). However, none of these thoroughly covered the structures from Horelli's model (2006). Furthermore, considering the need for methodological flexibility when conducting peer-research (Smith et al., 2002), many observation grids were considered too long or complex. For the study's purposes, the observers had to be able to objectively describe the elements they were recording as well as score them on a collective appreciation scale, providing rigorous and actionable indicators of the quality of the environment.

Four students of a community psychology introductory class contributed to the development of the grid to obtain course credits. They worked under the close supervision of a community psychologist and a PhD candidate with extensive research experience on well-being and residential environment. Teamed in two sub-groups, the students examined each of the identified observation grids, highlighting the items that seemed relevant to the public housing context and classifying them in Horelli's (2006) dimensions. Formally recognizing the expertise of peer-researchers, their insights collected during the *Photovoice* phase (Authors, Year) were integrated, making sure that the elements perceived as important by them were included in the grid.

The teams of students tested the grid in the university's surrounding neighborhood including a public housing development (different than the one under study) and in the neighborhood around their home. In follow-up discussions, the teams' answers were compared. Students expressed how it was sometimes difficult to select their final rating. The grid was improved to support reliable ratings by the observers. For example, the collective appreciation scale which initially varied between items was changed so that a numbered five-point scale, incorporating smiley pictograms, was used throughout (see Figure 1 for a sample page of the observation grid, which was designed in French, but translated in English for the purpose of the present article).

During a research meeting, the peer-researchers read the items and provided their feedback on the observation grid (e.g. length, lacking elements). The observation grid was

adapted with respect to their input. The co-authors specialised in social housing and urban planning, as well as stakeholders from the municipal housing agency also commented the grid. Based on their suggestions, the number of items was reduced and a few essential items (e.g. child day-care centers) or specifications were added. The final grid was separated in five sub-sections, as shown in Table 1 detailing all the items.

Procedure

Five 2-hour meetings between peer-researchers, with the facilitation from a PhD student and a research assistant, were necessary to complete the process. As part of the *Photovoice* phase, peer-researchers had delineated the area they collectively considered to be *their* neighborhood (including public spaces, and shops used on a regular basis). The same delimitations where used to implement the observation grid. Peer-researchers were teamed in three groups of three to complete the exercise. For each item, the peer-researchers from a same team had to agree to one consensual score. They were asked to support their scores by observable facts and pictures, and were invited to walk through their residential environment as needed when completing the grid.

During the initial meeting, peer-researchers were trained regarding the use of the observation grid. Images of residential structures rated high and low was presented as examples and discussed so that peer-researchers get a good sense of the different rating scores' meaning. Between the subsequent four meetings, peer-researchers filled out parts of the observation grid with their respective team. During the group meetings, the teams

successively presented their ratings and underlying justifications for each item, which they discussed as a group. Achievement of consensus between the three teams was targeted for every item. The perceptions of interconnectedness and collective capacity for achieving common goals were encouraged by working on communication and teamwork abilities. In line with consensus-seeking principles (Christian, 2003; Mackin, 2007), peer-researchers were encouraged to declare their agreement with the others (consent), to withdraw themselves from the discussion (stand aside), or to block the collective decision if they disagreed with a point they judged morally capital (block).

Once the teams agreed on consensual ratings, the most negative and positive elements were identified. Average ratings were computed for each of Horelli's (2006) residential environment structures.

Observation highlights

As shown in Table 1, consensual ratings varied between 0 and 4 across aspects. The mean consensual ratings (M=2.31, SD=0.99) was just above the middle point of the scale, showing that the residential environment was deemed globally adequate, although not excellent. On average, the public housing project was observed to be slightly less adequate (M=1.86, SD=0.96) than the neighborhood (M=2.53, SD=0.93). When considering separately the mean consensual ratings of Horelli's (2006) structures, participatory structures obtained the highest score (M=2.75, SD=0.94), only slightly more positive than

the others (Physical: *M*=2.36, *SD*=1.00; Functional: *M*=2.30, *SD*=0.99; Cultural: *M*=2.07, *SD*=1.02).

Based on the peer-researchers' consensual ratings, six elements of the grid emerged as providing the lowest (scores < 1) collective environment fit (in bold in Table 1). Illegal activities, whether occurring on the development's premises (#11), or committed by neighbors (#24), were seen as the most problematic. The teams justified their ratings by pinpointing specific negative behaviors they knew were taking place, such as loitering, drug-related activities, prostitution and vandalism. Physical traces of such activities were also mentioned, like used condoms or drug paraphernalia. Other negative aspects concerned the lack of quality play structures (#6) on the public housing development's grounds. In the absence of such structures to spend time constructively, children sometimes engaged in risky behaviors. Removal of snow (#10) obtained a low rating, as the delay for snow loading after storms was considered inadequate. Inefficient snow removal was also a justification for the low rating concerning street and sidewalks maintenance (#22), as well as the presence of potholes and insufficient street cleaning. Finally, the absence of employment services (#62) was reported as a problem: the one and only employment service in their neighborhood had recently closed its doors.

The community assets were numerous: collective environment fit was most positive for ten elements of the grid (scores > 3; italics in Table 1). The quantity of parks in the neighborhood (#32) obtained a perfect score, while aesthetics of the parks (#33) was

observed to be more than adequate. Similarly, quantity of greenery in the neighborhood (#25) was rated positively, based on the presence of many trees and flower arrangements. The variety of shops and services (#53) was also reported to be adequate ("We are near everything!"), as well as daytime security (#43) in the neighborhood. Children-related aspects were also considered assets, such as schools (#60) located nearby and offering enriched educational programs. Peer-researchers noted childcare services (#61) as adequate, although affordable day-care services were limited, which is common in the city (Public Health Direction of Montreal, 2012). While quality structures for children to play in the public housing development were observed to be problematic, equivalent areas in the neighborhood were numerous (#27). The amount of occasions to get involved on-site (#19), such as volunteering at the food bank or with the tenants' association, was deemed adequate. Recreational, cultural and social opportunities (#52) in the neighborhood were observed to be diversified, including a community center and an indoor pool.

Peer-researchers volunteered to participate in the preparation of a report of the most problematic elements that may require action as well as the community assets that could be capitalized. This report was presented to the tenants' association and other relevant stakeholders during the community forum.

Key challenges

Time constraints and consensus-seeking

Important time investment is a well-documented staple of collaborative research (Baum, MacDougall, & Smith, 2006; Isler & Gorbie-Smith, 2012). Time needs to be considered an essential resource in building a trusting partnership in participatory research, especially when the process involves difficult or sensitive tasks (Jones, Koegel, & Wells, 2008). In the present study, the time initially allocated to the consensus-seeking discussions more than doubled; from the planned three 90-minute meetings to five 120-minute meetings. The lengthening of the discussion phase became a double-edged sword bringing forth negative aspects (e.g. it was finally too time-consuming to analyse pictures taken during the observations), but also benefits, such as the emergence of novel experiential knowledge. Exchanges on certain topics elicited nuanced responses that contributed to the portrait of life in public housing. For example, the presence of fringe banking (e.g. check cashers) is typically considered as a barrier to financial well-being of low-income neighborhoods' residents (Buckland, 2010). However, peer-researchers explained that these services had useful purposes like the possibility of occasionally buying low-priced goods at pawnshops.

The extensive and intense discussions led us to modify our approach to draw out consensual scores. The facilitator had to take on an arbitrator role, where he interrupted the interactions, validated the majority's opinion and suggested the most unanimous point of view. Our research team was initially reluctant to implement this change, concerned that it would induce a power imbalance, as can surface in peer-research (Guta et al., 2013). It was

consequently decided to add a parallel scoring system, based on the *Canadian Institutes of Health Research*'s grant application peer-review process. Each person could give personal scores that were 0.5 higher or lower than the consensual score, which ensured individual representativeness. The peer-researchers reported being satisfied with how this alternative method took their opinion into consideration. Only the consensual scores are reported in Table 1, as the average of personal scores yielded very similar results.

Relationships between peer-researchers

Peer-research is complex and can sometimes represent a challenge in balancing conflicting roles, for example friend/neighbor versus peer-research colleague (Carlisle & Cropper, 2009). In this study, the fact that the peer-researchers were all tenants of the same public housing development created an unforeseen challenge. While the *Photovoice* stage went smoothly, the consensus-seeking discussions in the current phase elicited passionate debates and seemed to broach on sensitive subjects. The facilitator, who knew the participants from the previous phase, was disconcerted with the friction. One hypothesis was that the peer-researchers defended different residential aspirations (Jansen, 2013). Individuals advocating to improve the environment seemed to have higher residential aspirations. In contrast, individuals who were relatively content with the situation seemed to have lower aspirations: they expressed that tenants should be satisfied considering this was a public housing setting. The addition of a parallel scoring system and a negotiated truce between the concerned peer-researchers enabled the group to resume the consensus-

seeking process in an atmosphere that was more conducive to fruitful discussions. As suggested by Jagosh et al. (2012), conflict can sometimes be intrinsic to participatory research and, once resolved, can lead to enhanced group synergy. After resolution of the conflict, participants were able to work and discuss the issues, even sensitive ones (e.g., mental health issues in the public housing development), much more openly and effectively. This suggests that the positive resolution of a conflict can enhance personal and collective senses of efficacy and contribute to community empowerment (Snoeren, Niessen, & Abma, 2011).

Reflections on lessons learned and next steps

Multi-method complementarity

The observation method was shown to be a useful complement to other more exploratory methods. The systemic observation grid invited peer-researchers to describe the comprehensive array of structures from Horelli's (2006) model. In comparison, the *Photovoice* method used in the previous phase yielded only a partial portrait focused on aspects that could easily be photographed (Wang & Pies, 2008). For example, peer-researchers rated illegal activities to be the most problematic situation in their residential environment during the observation phase. However, this was not a salient preoccupation in the *Photovoice*. It could be assumed that it was considered unsafe by peer-researchers to photograph this type of situation, or that it made them uncomfortable to voluntarily invoke this aspect in a research context. In fact, although it seemed liberating for them to discuss in

the consensus-seeking sessions, the topic remained unsettling. This highlights the importance of a confidential, safe and supportive environment for such group meetings (Foster-Fishman, Nowell, Deacon, Nievar & McCann, 2005).

Community empowerment as a process

Accomplishing action research with marginalized communities, such as public housing tenants, entails specific challenges. In fact, when involving particularly disempowered participants to take part in this type of study, active support by the research team is required in the beginning (Laverack & Labonté, 2000). The activities included in the observation phase where conceived in a capacity-building framework, where the peer-researchers developed their ability to systematically observe their surroundings, to work within a small group and to take part in collective decision-making. These activities intended to promote peer-researchers' individual empowerment, as well as the intracommunity component of community empowerment. Taking part in collaborative and sometimes challenging discussions seemed to promote peer-researchers' sense of collective efficacy and sense of interconnectedness. With a stronger intracommunity component, members of the community are more likely to take action to ensure a safer and healthier setting (Aiyer et al., 2015). This is currently happening, as an action plan is being designed by the group of peer-researchers and is going to be implemented with minimal involvement of the academic researchers.

The use of the grid as an objective and precise method of data collection will facilitate the peer-researchers' advocacy actions. While the images from the *Photovoice* phase were evocative, their exploratory nature may render them less actionable in discussions with the community's decision-makers compared to the observation grid results. For example, if they were to meet with municipal urban planners to ask for traffic-calming measures, the photo of an enacted car accident may commend attention. However, the detailed observations of the causes of the lack of road safety, such as the public housing's street used as an alternative to a nearby busy road, or the poor maintenance of sidewalks, can give more precise objectives for urban planners on which to focus. Furthermore, the communication skills developed by the peer-researchers will likely have enhanced their ability to transmit requests to decision-makers.

Validation and replication

Although the project is still under way, factual evidence suggests the usefulness of this new participatory method for mobilizing peer-researchers around the well-being of their community. First, peer-researchers were committed to the process, as supported by their assiduity. Second, several animated discussions occurred during the consensus-seeking sessions, highlighting the value peer-researchers put on achieving the most accurate portrait of their environment. Furthermore, several volunteered to play leading roles in the follow-up advocacy activities, through which a report of the study's highlights was presented to stakeholders and a community forum was organized. Harnessing their sense of

commitment and their group spirit, this action phase could lead to concrete improvements in their residential environment. To examine the effects of the observation participatory method, it will be implemented and evaluated in five other public housing developments, with various characteristics (e.g., more culturally diverse, older buildings). Personalized outreach efforts will be made to recruit peer-researchers with more diverse characteristics (e.g. men, younger adults) to explore the impact of the group's composition on the implementation of the method and ulterior results.

The method developed for this study adds to the existing action research methods by relying on insiders' observations, integrating a wide array of everyday structures, and providing a nuanced perspective on the residential environment. It also illustrates how quantitative components can be integrated to action research processes in a way that doesn't conflict with participatory goals. In line with Martí, (2016), as shown in the study, quantitative ratings can enhance comprehensive, precise and systematic measurement of the issues of interest while also supporting participation and empowerment. Nevertheless, this participatory approach might not provide, as it was not intended to, the level of standardization offered through observation grids rated by research assistants. Triangulating the experience from multiple sites is needed to establish the validity and added-value of this observation method in a larger action research project.

Conclusion

Given the difficulties and marginalization they face at the economic, psychological and social levels, people living in public housing are amongst the most disempowered groups of our society. However, as exemplified by the peer-researchers in the present study, they share a sense of community that can be harnessed for expressing their opinions and advocating positive change. Although time and relational challenges necessitated creative methodological solutions, the participatory observation method was useful in mobilizing a group of public housing tenants in a reflection and action process for improving the residential environment and the well-being of their community.

Table 1. Items and classification in Horelli's (2006) structures

Struc-ture	Items	Consensus
	A) Public housing development	
F	1. Maintenance of the premises	1.5
Ph	2. Air quality inside the public housing development	2
Ph	3. Noise pollution*	1
Ph	4. Presence of common areas	2
Ph	5. Access to a community space	1
Ph	**6. Access to quality play structures and areas**	**0.5**
F	7. Ease of parking	2
Ph	8. Access to bike parking spots	2
Ph	9. Environment adapted to people with mobility limitations	1.5
F	**10. Adequate snow removal from parking and common areas**	**0.5**
C	**11. Illegal activities of certain tenants or loiterers***	**0**
C	12. Cordial interactions among tenants	2.5
C	13. Solidarity among tenants	2
C	14. Sense of security during the day	2.5
C	15. Sense of security during the evening	1.5
F	16. Variety of support organizations on-site to answer the needs of the whole family	3
F	17. Ease of obtaining the services of the on-site support organizations	3
F	18. Quality support offered by the on-site organizations workers	3
Pa	*19. Opportunities to get involve on-site*	*3.5*
Pa	20. Opportunities to give one's opinion on the public housing development	3
Pa	21. Opportunities to put one's qualities and talents to use in the public housing development	1
	B) Streets and buildings in neighborhood	
F	**22. Maintenance of streets and sidewalks**	**0.5**
Ph	23. Upkept appearance of buildings	2.5
C	**24. Illegal activities***	**0**
Ph	*25. Quantity of greenery*	*3.5*
Ph	26. Aesthetics	3
Ph	*27. Presence of areas where children can play in the neighborhood*	*3.5*
Ph	28. Air quality	1.5
Ph	29. Noise pollution*	1
F	30. Pedestrian safety	1.5
Ph	31. Sufficient lighting	3

Note. Ph=Physical; F=Functional; P=Participatory; C=Cultural. Items in bold received the least positive ratings (<1) and items in italics received the most positive ones (>3).
*For these items, scores are reversed, so that high scores always represent positive elements.

(continued)

Table 1. Items and their classification in Horelli's (2006) structures (continued)

Struc-ture	Items	Consensus
	C) Green spaces in neighborhood	
Ph	32. *Quantity of landscaped green spaces (parks)*	*4*
Ph	33. *Aesthetics*	*3.5*
F	34. Maintenance of premises	3
Ph	35. Quality of furnishings	3
Ph	36. Presence of quality play structures for children	3
Ph	37. Presence of quality sport infrastructures for young people	3
Ph	38. Presence of quality recreational infrastructures for adults	2
Ph	39. Presence of quality aquatic infrastructures	3
C	40. Use of parks	3
C	41. Cordial interactions among people in the parks	2.5
	D) Interpersonal relationships in neighborhood	
C	42. Thriving neighborhood life	2.5
C	43. *Sense of security during the day*	*3.5*
C	44. Sense of security during the evening	2
C	45. Supervision of children by adults in public spaces	2
C	46. Cordial interactions among people	3
C	47. Solidarity among residents	2
	E) Shops, community organizations and services	
F	*48.* Public transit	3
F	49. Public safety services	2
F	50. Availability of healthy eating options nearby	2.5
F	51. Presence of bars, video lottery terminals, stripclubs or gambling*	2
Pa	52. *Presence of recreational, cultural and social opportunities*	*3.5*
F	53. *Varieties of shops and services that are practical in the day-to-day life*	*4*
F	54. Presence of pawnshops or check-cashing outlets*	2
F	55. Presence of health professionals	2.5
F	56. Proximity of a hospital (reasonable amount of time to get there)	1.5
F	57. Presence of medical clinics offering easy access to appointments	2
F	58. Presence of religious of spiritual spaces	3
F	59. Presence of various support organizations to answer the needs of the whole family	3
F	*60. Presence of primary schools and high schools nearby*	*3.5*
F	61. *Presence of daycare services for children*	*3.5*
F	*62.* **Presence of employment services**	**0.5**
Pa	63. Presence of organized recreational activities for young people	3
Pa	64. Opportunities to learn new things and gain new skills	2.5

Note. Ph=Physical; F=Functional; P=Participatory; C=Cultural. Items in bold received the least positive ratings (<1) and items in italics received the most positive ones (>3).
*For these items, scores are reversed, so that high scores always represent positive elements.

Figure 1. Sample page of the observation grid

Part A: Public housing (interior and exterior common spaces on the public housing's grounds)

Your general comments on the public housing's interior and exterior common spaces

	0 ☹	1	2 😐	3	4 ☺	Does not apply ☐
A.1 Maintenance of the premises Ex. absence of strong odors, of garbage, of broken glass, of vermin, of vandalism, of graffiti, etc.						
A.2 Air quality inside the public housing development Ex. absence of dust, good ventilation, absence of mold, etc.	0 ☹	1	2 😐	3	4 ☺	Does not apply ☐

	0 ☺	1	2 😐	3	4 ☹	Does not apply ☐
A.3 Noise pollution Ex. noise, screams, loud music, etc.						

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