

Social capital in urban agriculture initiatives

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Abstract

Purpose – The study aims to investigate urban agriculture in the city of São Paulo from the perspective of social capital. The specific objectives are (1) to identify the effects of social capital on urban agriculture and (2) to investigate social capital formation (its sources and challenges imposed onto its development).

Design/methodology/approach – Initially, a review of the literature was carried out in order to understand the main concepts used in the field of study. Semi-structured interviews were also carried out with people from urban agriculture initiatives, and they were analyzed under the lens of social capital.

Findings – Aspects of social capital were recognized and organized in a framework including sources, effects and challenges. The first deals with consummatory or instrumental sources that generate social capital. The second deals with the following effects: generation of human capital, citizenship, engagement, access and mobilization of resources, and access to information. The third deals with the challenges to its formation related to homophily and the perception of benefits from this form of capital.

Originality/value – Urban agriculture plays an increasingly important role in relieving the pressure generated by the food production system, being part of the solution to food security and sustainability issues. Many researchers recognize important social aspects acting on the dynamics of the movement and the effects of activities on the generation of social capital. The contribution of this work is to deepen the understanding of this type of capital in the context of urban agriculture.

Keywords Social capital, Urban agriculture, Urban gardens, Citizenship

Paper type Research paper

1. Introduction

Urban and peri-urban agriculture (UPA) can be defined as the growing of plants and the raising of animals within and around cities (FAO, 2017), and what distinguishes it is its greater connection with the dynamics of cities (Mougeot, 2000). Other factors that make it unique are related to the limited access to land, use of alternative means for cultivation and the involvement of nontraditional farmers (Pfeiffer, Silva, & Colquhoun, 2014).

The practice of urban agriculture has recognized social, economic and ecological benefits (Pearson, Pearson, & Pearson, 2010) that are motivators of people's engagement in such activities. Among them, we can list reducing disparities in access to quality food, improving public health, reducing heat islands effects and energy consumption, increasing opportunities for composting, rainwater harvesting and drainage, and increasing pollination and seed dispersal (Ackerman, 2012; Barthel, Parker, & Ernstson, 2013; Branco & de Alcântara, 2011; Pearson *et al.*, 2010).

In addition to these benefits, social aspects are important for understanding the dynamics of the movement, and it is possible to observe the importance of social networks for the implementation and maintenance of urban agriculture practices (Artmann & Sartison, 2018).



The characteristics of these relationships can facilitate or hinder the mobilization for targeted actions (Glover, Parry, & Shiness, 2005).

In the city of São Paulo, according to Caldas and Jayo (2019), there are two basic models of urban agriculture: “scale urban agriculture”, focusing on food production and generally located in peripheral regions, and “visibility urban agriculture”, generating environmental awareness and raising visibility to the political agenda of urban agriculture, which is mainly located in the central regions of the city. For each of these models, different difficulties and motivations are expected.

According to Kanosvamaha and Tevera (2019), the success of urban agriculture depends heavily on the organization of urban farmers for access to resources and advocacy, with social capital being an important tool for community development of public policies and programs. Exploring and taking advantage of the existing social capital is important, not only to get commitment from farmers in the development phase of policies but also for their maintenance and effectiveness (Kanosvamaha & Tevera, 2019).

Similar studies can be found since the 1980s, arguing that people become more able to support projects proposed by government and nongovernmental organizations (NGOs) when they are organized into groups, and their knowledge is incorporated into the planning and structuring phases of those projects. For example, De los Reyes and Jopillo describe how, from 1976 to 1980, the National Irrigation Program in the Philippines managed to integrate farmers into associations by encouraging them to implement processes for project management (De los Reyes & Jopillo, 1986). Pretty, Thompson and Kiara (1995) narrate how, in 1988, the Kenya Ministry of Agriculture adopted a water harvesting strategy to reduce aridity in the region through a strategy of community mobilization around the conservation of the environment. In Bogotá, since 2006, local government programs have revitalized the urban agriculture practice through training, promoting the connection of communities and motivating them to produce part of their food and connect with nature (Sendra & Pita, 2017).

Based on the recognition of this potential, this article aims to investigate urban agriculture in the city of São Paulo from the perspective of social capital. The specific objectives are (1) to identify the effects of social capital that influence urban agriculture and (2) to investigate social capital formation within the network of initiatives (its sources and the challenges imposed onto its development).

The contribution of this article is to highlight aspects that facilitate or hinder the formation of social capital in urban agriculture initiatives in the city of São Paulo, in addition to highlighting the relevance of public policies that contribute to the mobilization of capital and to overcoming challenges in the field.

We carried out interviews with representatives of 16 gardens in the city of São Paulo and organized them into categories. At the end, a data structure was created in order to promote the articulation with concepts from the theory initially presented.

1.1 Social capital

The concept of social capital currently applied in the social sciences is strongly influenced by the theoretical framework of Bourdieu, Coleman, Lin and Putnam that on the one hand share commonalities, while on the other hand are based on distinct theoretical traditions (Bianchi & Vieta, 2020; Tzanakis, 2013).

For Bourdieu, social capital is “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (Bourdieu, 1986, p. 21). The network of relationships is the product of individual or collective investment strategies, conscious or not, with the objective of reproducing social relationships in short-term utility (Bourdieu, 1986). The

network is capable of producing and reproducing durable relationships that can ensure symbolic and material profits. However, the amount of social capital one possesses depends on the size of the individual's network and the amount of economic, cultural and symbolic capital possessed by the individuals to whom he is connected. Subjective values, laws and norms sustain social capital and enshrine symbolic power (Bourdieu, 1986, p. 22).

Bourdieu's approach, therefore, considers the context in which the individual is inserted and the position he/she occupies in a social field. Access to a group depends on the economic capital it has, which limits its ability to socially climb and achieve a power position. Social capital is, at the same time, an element that strengthens social institutions and mutual exchange and that excludes those whose position is not privileged by access to symbolic and economic capital (Daly & Silver, 2008).

Like Bourdieu, Lin (1999) also explores social capital as resources that are imbricated in social relationships. Social networks, wealth, power and reputation are examples of these resources.

For Coleman (1988), social capital is a conceptual tool that seeks to explain social action, matching the perspective of individual interests and social context. Coleman describes the term as a public good and a resource available to the actor, yet less tangible than other types of capital. According to him, social capital "is not a single entity, but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors – whether people or corporate actors – within the organizational structure" (Coleman, 1988, p. 98). Social capital, in this way, can be defined as aspects of the social structure that serve as resources for actors to achieve their interests. Coleman thus treats the sources and derived benefits as social capital itself, defining it in different forms: obligations, expectations and reliability of structures; potential information channels; norms; authority relationships; appropriable social organizations and intentional social organizations (Coleman, 1988).

Portes (1998) suggests differentiating sources and resources of social capital. Sources of social capital allow individuals to make their resources and improvements available to others. Sources that facilitate the access of members of a network to its resources can be consummatory or instrumental. Consummatory sources are accessible through the introjection of values and the internalization of norms that are good for everyone, such as traffic rules, the obligation to pay off debts and the inhibition of crimes. Instrumental sources are exchanges motivated by expectations of future payments and compensation.

Social capital can be seen as structured by social networks. These contribute to social capital generation according to their characteristics, or to a form of social capital itself, for the capacity of generating trust. Social networks, therefore, are intrinsically related to social capital. Part of the concept of social capital involves the conditions of relationships between people that allow resources to be accessed and mobilized for action (Lin, 1999).

The density of a network, that is, the ratio of existing relationships to possible relationships, influences exposure to ideas and information. Higher network densities can reduce the cost of acquiring information (Coleman, 1988). This means that social relationships make it possible to obtain information faster and at a lower cost.

Putnam, Leonardi and Nanetti (1993) stress that investing in social capital not only benefits the individual but also others involved in the network. The authors deal with collective action, seeing social capital as a characteristic of communities and nations, producing civic engagement. Their approach, however, like Coleman's, is criticized for not considering the context and power relations in the dynamics of networks (Bianchi & Vieta, 2020).

Despite the differences among approaches, aforementioned authors agree that networks are important, as their formation and structure cause effects in the generation, acquisition and dissemination of information, in the mobilization and allocation of resources, in the

commitment to common rules, in the resolution of conflicts (Barnes, Lynham, Kalberg, & Leung, 2016; Bodin & Crona, 2009) and have effects on learning, trust and leadership (Bodin, Crona, & Ernstson, 2006).

Finally, the effect of social capital on the development of individuals' skills is also highlighted, that is, this capital can be converted into human capital (Coleman, 1988).

Portes (1998) points to the negative effects of social capital, which can lead to exclusion of people from outside the groups from certain resources and spaces, something extensively explored by Bourdieu (1986). Another negative effect is that social capital can generate excessive credits for members of the same group and can as well lead to restrictions on individual freedoms. The concept of homophily is used by many authors to address the issue (Lin, 1999). This is the tendency to form stronger social bonds with peers, which, at a certain level, can lead to segregation and inhibit learning and communication between groups (Barnes *et al.*, 2016).

Another studied challenge is related to social capital's nature as a public good. Some actors, who actively participate in the social life of a community, generate social capital that benefits the entire structure, but end up capturing only part of its benefits (Coleman, 1988), limiting their motivation to invest in social capital building.

1.2 Social capital for urban agriculture

Research that deals with the relationship between urban agriculture and social capital presents it, in most cases, as an effect: the involvement of people in activities that generate social capital is recognized as a positive effect. It is a result of meetings and networking to carry out community actions (Bonow & Normark, 2018).

Glover (2004) recognizes that community gardens can generate social capital as they strengthen social bonds and connections between neighbors, encouraging mutual care. From this generated social capital, effects such as democratic participation emerge (Glover *et al.*, 2005; Kingsley & Townsend, 2006), and social cohesion, seen as an ecosystem service by Petit-Boix and Apul (2018), can be identified.

In line with these authors, Kingsley, Foenander and Bailey (2020) discussed how community gardens in Melbourne can facilitate or hinder social capital in order to identify ways to expand access to different population groups and extend benefits generated beyond the garden. Christensen, Malberg Dyg and Allenberg (2018) propose to broaden the understanding of the structural aspects of this capital through the composition of the network, comparing the sociodemographic characteristics of participants to those of local residents.

In a different perspective, social capital can be understood as a cause. As such, urban agriculture is seen as the end product of a network of individuals committed to its development (Glover, 2004). Social networks are important for governance and collective action (Van der Jagt *et al.*, 2017) and for overcoming barriers in the development of community gardens (Ghose & Pettygrove, 2014).

Following this approach, Méndez-Lemus, Vieyra and Poncela (2017) explore the structure and processes of an intragovernmental network that leads its actors to work together to try to improve the quality of life of local residents and to control urbanization on agricultural land. Oliveira and Santos (2020) consider social capital as necessary for solidarity economy, which, in turn, is necessary for strengthening family farming. However, his research presents some challenges for the development of social capital, such as the alienating routine of farmers, and indicates the need for policies to foster this capital, as well as actions in partnership between the public sector and civil society, to create a culture of trust and cooperation.

Understanding how networks evolve and are distributed, spatially and socially, allows researchers to investigate actions and collaboration among actors to achieve goals. Some

objectives of farmers found in the literature are to shorten the feedback loops between agricultural practices and consumer demand for local and socio-ecologically fair foods (Brinkley, 2017) and to improve competitiveness by being part of the local food system, while facing increasing real estate pressure on peri-urban farmland and the offer of cheap imported food (Diehl, 2020). These studies can inspire city governments in planning food systems.

Other studies also identify social relationships as a motivator, or an explicit objective, for the involvement of people in collective experiences (Nordh, Wiklund, & Koppang, 2016; Dunlap, Harmon, & Camp, 2019).

2. Methodology

Initially, a bibliographic review was carried out to understand the main concepts of social capital and to look at studies that relate social capital and urban agriculture. Next, semi-structured interviews were carried out with representatives of urban agriculture initiatives in the city of São Paulo (Laville & Dionne, 1999).

2.1 Data collection

The representatives were asked to speak on behalf of the initiative, in cases in which there is a group involved in the work. The interviews involved questions about objectives and difficulties of the initiatives; origin of resources; participation in groups, associations and collectives; motivation and importance of contact with other initiatives; benefits of these relationships and difficulties in establishing and maintaining contacts. The urban agriculture initiatives are listed in Table 1.

2.2 Data analysis

Data were analyzed using a hybrid inductive-deductive approach, following the steps proposed by Fereday and Muir-Cochrane (2006). According to this proposal, data can be initially coded respecting concepts from the theoretical review, but also should enable themes to emerge from interviewees' statements.

In this article, the inductive approach was possible from the application of the data structure used by Gioia, Corley and Hamilton (2012). The model assumes that data are

Initiative	Location	Number of people involved	Category	Goal	Age of initiative
Garden A	South Zone	~55	Visibility	Non-commercial	7 years
Garden B	West Zone	20	Visibility	Non-commercial	7 years
Garden C	North Zone	1	Scale	Commercial	6 years
Garden D	East Zone	9	Scale	Commercial	10 years
Garden E	East Zone	7	Visibility	Non-commercial	3 years
Garden F	East Zone	2	Scale	Commercial	6 years
Garden G	East Zone	~30	Visibility	Non-commercial	16 years
Garden H	South Zone	4	Scale	Commercial	4 years
Garden I	West Zone	~10 most assiduous	Visibility	Non-commercial	8 years
Garden J	West Zone	5	Scale	Commercial	2 years
Garden K	South Zone	~8	Scale	Non-commercial	6 years
Garden L	West Zone	2	Scale	Commercial	2 years
Garden M	North Zone	4	Visibility	Non-commercial	7 years
Garden N	West Zone	6	Scale	Commercial	8 years
Garden O	Center	5 closest members/15 total	Visibility	Non-commercial	2 years
Garden P	Center	3 most active	Scale	Non-commercial	2 years

Table 1.
Urban agriculture initiatives selected for interviews

analyzed as the interviews progress and that the script is flexible in order to allow the data to emerge from the interviewees' statements. The analysis should be carried out in three stages so that the data are aggregated according to identified patterns (Figure 1). The first step requires summarizing the data into first-order elements, preserving the central interviewees' statements. The second step requires the identification of relationships among the first-order elements and suggests concepts that can explain the phenomenon. In the third step, themes are aggregated into broader dimensions.

In the initial definition of codes in the deductive approach, numerous terms emerged. In the first eight interviews, we identified around 30 codes, according to elements predicted in the theory. As the interviews progressed, we sought to identify similarities and differences among the various categories, following the notion of axial coding proposed by Strauss and Corbin (1998), which allowed us to reduce the number of categories to 18.

The next step was to define the second-order categories. To this end, we grouped the first-order themes according to the concepts suggested by them. Next, we sought to identify the similarity among these concepts and those we had identified in the literature review. Finally, we investigated how to aggregate data into broader dimensions, based on relevant concepts in social capital theory. The data, structured in this way, provided us with a graphic representation of the analysis process (Figure 1). The following results are organized around this structure.

3. Results

3.1 Social capital aspects

Aspects of social capital were recognized and observed in all interviews. They were organized into sources, effects and challenges, which constituted the aggregated categories of the analysis. The first deals with the consummatory and instrumental sources that generate

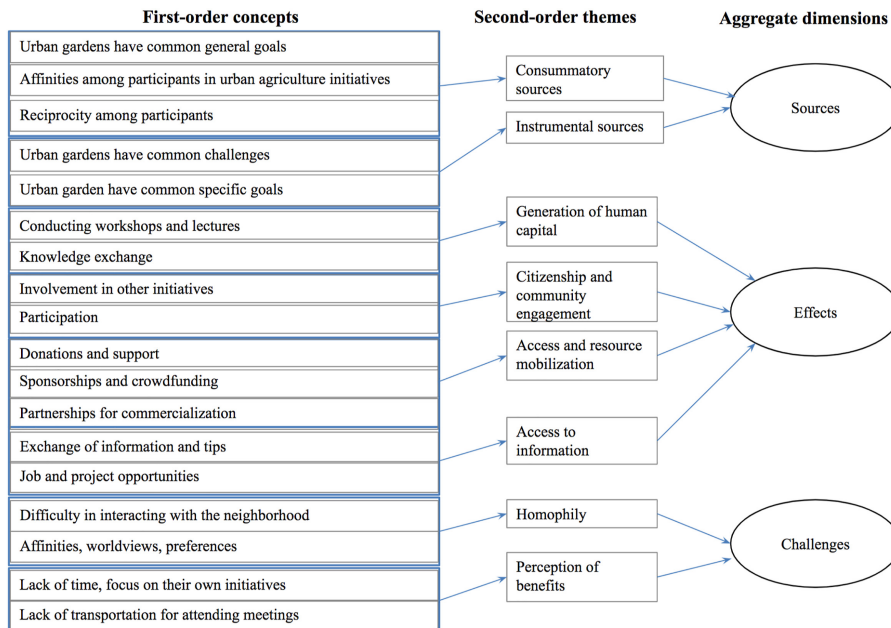


Figure 1. Emergent analysis structure

social capital. The second deals with the following effects of social capital also identified in the theoretical framework: generation of human capital, citizenship and engagement, access and mobilization of resources, and access to information. The third deals with the challenges related to the effect of homophily or the perception of benefits. [Figure 1](#) presents the emerging structure with the first- and second-order themes and aggregated categories. After presenting this figure, sources, effects and challenges of social capital are analyzed and illustrated from the interviewees' statements. The anonymity of the informants was preserved, and the speeches were kept "in vivo" – as said by the speakers.

3.1.1 Sources. Analysis of the sources of social capital is important to understand the motivations of individuals to make resources available and to be willing to collaborate. The identified themes were grouped into consummatory and instrumental sources.

Urban garden initiatives, in general, have characteristics and objectives in common. Participants in urban agriculture initiatives recognize affinities among themselves. Reciprocity is seen as something shared by them. These first-order themes were identified in the interviews and grouped into the second-order theme of consummatory sources, as they can be interpreted as signs of delimited solidarity, an important motivator to share resources ([Portes, 1998](#)). In this case, the initiatives of urban gardening recognize themselves as part of a group of "urban agriculture", and this is an important incentive for individuals to donate their time and make resources available to support these initiatives. The following quotes illustrate this finding:

In this urban agriculture group, most people are becoming aware that we need to change this way of life [. . .]. I think they are engaged, very active people, who really participate and do things right, they do what has to be done. What is common is the desire to produce their own food, healthy food, to build a better planet and to encourage people to practice agriculture. (Interviewee, Urban Garden C)

When I arrived in this world of agriculture, I got to know a reality that I was not used to: people with open doors, willing to pass on knowledge, to help others' work. For me, it made a big difference. (Interviewee, Urban Garden H)

The affinities between the participants range from the search for contact with nature to the existence of similar characteristics, such as participation and willingness to work. Reciprocity and willingness to collaborate with other members were shared aspects that were recognized. In one quote, the expression "in this group of urban agriculture" reveals the recognition of a group identity with urban agriculture. These elements were interpreted as consummatory sources, once they constitute shared values and meanings that facilitate relationships and social capital. However, they also reveal the mutual recognition, based on symbolic exchanges, possible by the formation of the group cultural capital, according to [Bourdieu \(1986\)](#) theoretical assumptions.

The challenges faced by the urban gardens, as well as specific objectives that are common to them, are also motivators of the social relationships that are established. As they reveal motivations related to the expectation of benefits, they were recognized in the analysis as instrumental sources of social capital:

Basically, we develop the same work and go through the same situations. We have several points in common, the difficulties are the same [. . .] the issue of food distribution [. . .] supplies etc. As we are far from the countryside, we have these difficulties, such as finding labor force, because it will not be easy to find people who already do this type of work here. (Interviewee, Urban Garden H)

The difficulties reveal how social capital contributes to mobilizing resources, but restricted to the network itself. The limitations are given by the volume of social capital that members are able to mobilize related to the size of the network and the volume of economic, cultural and symbolic capital that they are able to mobilize ([Bourdieu, 1986](#)).

3.1.2 Effects. The effects of social capital that emerged were related to the generation of human capital, the promotion of citizenship and engagement, access and mobilization of resources, and access to information. These themes were identified as effects of the individuals' participation in activities related to the urban garden alongside other people; therefore, they fit into this category as a positive result of the existence of social capital or of the network of relationships. With the exception of three, all the other representatives of the initiatives reported participating in groups, collectives or associations, in addition to actively participating in internal activities, revealing the existence of different investment strategies in building networks, as predicted by Bourdieu (1986).

Contacts with other people and the relationships that are formed from urban agriculture practices favor the development of individuals' skills, as discussed by Coleman (1988). Urban gardens B, E, I, K, and M started off with objectives related to education. But also, in several other initiatives, activities such as workshops and lectures take place:

When there is a collective effort, we invite someone to talk about certain subjects: non-violent communication [...]. This happens mainly during collective efforts and specific workshops. (Interviewee, Urban Garden A)

I want it to be more a cultural than a commercial space. People who come here already know. They come to learn, to get books [...] Sometimes, I promote workshops about organic fertilizer, unconventional food plants identification and cooking. I've done a drawing and craft day in the urban garden to relax, too. (Interviewee, Urban Garden C)

The exchange of knowledge was the most cited effect of existing social relationships among different urban garden initiatives. This is also the main motivator for establishing and maintaining these relationships.

By getting involved in the activities of the urban gardens, many people end up motivating themselves to participate more actively in city issues and in other initiatives. This effect is related to the collective trait of social capital (Putnam *et al.*, 1993). The effect on participation and citizenship for members of community gardens was also identified in Glover *et al.* (2005). The involvement with the space, the closer contact with the problems of the city and the discussions among participants are motivators of engagement. In this way, gardens end up generating benefits beyond their limits, impacting the collective on a broader level. Social capital can thus be interpreted as a private and public good (Putnam *et al.*, 1993). However, its limits are given by the possibility of its members reaching other connections that, ultimately, find their roots in economic capital (Bourdieu, 1986).

The community garden serves as a trigger. People start attending and then get involved in other initiatives. There are elections in the city hall, people go; there are elections in schools, people usually go. The staff is very engaged. [...] The main objective is to show that, by participating in these small things, we can achieve greater things. Citizenship, right? (Interviewee, Urban Garden A)

Access to resources within a social structure, as seen in the theoretical framework, is part of the concept of social capital. The most significant indications that social capital favors the mobilization of resources emerged from mentions of donations to the initiatives and the support offered by people, both from inside and outside the group. When asked about the origin of the necessary resources, the interviewees pointed to the following sources provided by the network of contacts: donations, crowdfunding from participants and supporters, and sponsorships from local merchants.

We also receive donations through these contacts. When people have something to donate, they get in touch with us. I have already got things that we would have had to pay for. (Interviewee, Urban Garden O)

Another demonstration of mobilization and access to resources facilitated by social capital are farmers' partnerships and commercialization efforts. These are important for scale gardens that sell their products to reduce costs and to increase the variety of products offered to customers.

Without partnerships, there is no organic agriculture. People are very interdependent. There are several problems that can be mitigated through partnerships, whether about logistics, inputs purchasing, and having a greater variety of products for sale. (Interviewee, Urban Garden H)

Finally, a major effect of social networks is the easier access to information (Coleman, 1988; Burt, 2004; Granovetter, 1973; Lin, 1999). The structure of these networks will affect the way information circulates. The formation of ties can reduce the costs of acquiring information, which is advantageous for garden initiatives. It can be seen that information flows easily through links that result from activities related to urban agriculture.

You build networks. When you go to the fair and find that person who says something important. "Are you from that community garden? I read somewhere that there is an interesting opportunity." Sometimes you don't even have to look for it, the information comes to you as long as you are in the right place at the right time. (Interviewee, Urban Garden B)

The networks of contacts also allow the work to reach further, expanding the opportunities that are accessed by farmers and members. The involvement in networks with different actors can create professional opportunities and generate income. Burt (2004) relates these opportunities to the proximity of these individuals to structural holes, which are voids in the structure of networks that allow nonredundant contacts.

There was an expansion of our recognition, because we provide a lot of service to them (partners). They end up promoting our work and increasing our network. (Interviewee, Urban Garden D)

3.1.3 Challenges. The issue of homophily can be a challenge of social capital formation. A very cohesive group can bring issues such as inhibition of learning due to lack of contact with different groups, homogenization of information and restriction of certain resources and spaces to people from outside the group. By the interviews, when questions were asked about the differences among urban farmers, they were either recognized as nonexistent or recognized as differences in worldviews, preferences and even in forms of cultivation. The first result may indicate that the groups are only related to initiatives with some affinity, and the second also demonstrates it in a different way.

The following excerpt indicates the greater cohesion of the network of relationships of the interviewed group:

These people are always present in various collectives, events, so we cross paths very often. It's a small world, it's weird. (Interviewee, Urban Garden A)

The following excerpt demonstrates a lack of relationships between different groups, referred to as "people from different areas" and a prejudice towards urban agriculture:

Another challenge is that people from different areas start to look without prejudice and understand that they can contribute to it, with knowledge, helping to spread the idea. Everyone can help urban agriculture. (Interviewee, Urban Garden B)

However, there is recognition of a limitation for the change of culture in the valorization of organic food production and healthy diets through urban agriculture.

Radicalism and unyielding positions cause separations. For example: I don't like to grow produce using plastic containers. If not so, it becomes infeasible. These limitations ungroup, push people away and do nothing to change the culture. (Interviewee, Urban Garden B)

Another sign of this challenge was the difficulty of integration with the local community surrounding these gardens. The desire to involve the local community was mentioned in two of the interviews. The difficulties of acceptance and support from the neighborhood were also mentioned in two others.

My dream is that more people from the community participate. But that's not what happens, there's more people from outside. (Interviewee, Urban Garden N)

In addition to homophily, other aspects hinder the formation and development of social capital. The lack of time and transportation to participate in meetings and spaces for dialogue were some of the factors mentioned as limiting the maintenance of social relationships. These topics were grouped as affecting the perception of benefits of social contacts as, in addition to the urban garden essential tasks, the time and energy investment on their own initiatives or on other personal issues can bring higher return or prove to be more necessary for the individuals than being in touch with others' initiatives. The benefits of social capital are diffuse and can disperse over time and across a group. All these factors reinforce the possibility of looking at social capital as a factor of social exclusion, as advocated by Bourdieu. Based on symbolic exchanges delimited by relations of mutual recognition and homogeneity, social capital exerts the multiplier effect of the capital that individuals have in their own right and has its limits on the capital of the other members of the network to which the individual is connected.

4. Discussion

In this article, we investigated social capital, deepening the understanding of its bases (the sources), its effects on urban agriculture initiatives and some challenges in its formation, presented in Figure 1. The dynamics among these categories are now represented in Figure 2. Urban agriculture initiatives are favored by social capital at the same time that allow its generation and development.

The sources of social capital are motivations that are related to the identification with other participants in urban agriculture, named instrumental motivations. There are affinities among the participants, which include lifestyle and worldview, and there is identification with an "urban agriculture group" (consummatory). There is a perception of reciprocity within this network. As part of what unites this network of relationships, there are difficulties and objectives inherent to urban agriculture. These aspects were

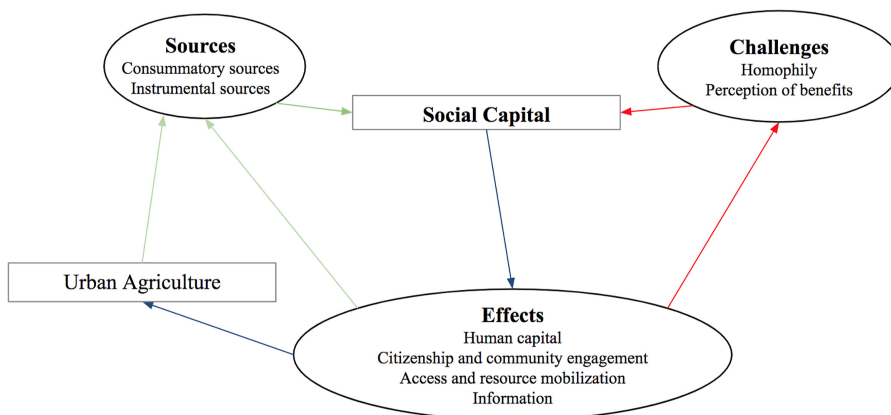


Figure 2. Social capital aspects in urban agriculture

recognized and analyzed as sources because they motivate the construction and maintenance of social relationships. The diagram shows that sources of social capital are fueled by their own recognizable effects. Several practices belonging to urban agriculture are also generators of social capital. Urban agriculture, therefore, is a field that allows the consolidation of sources of social capital. However, it is restricted to the volume of resources of the network members and the volume of economic, symbolic and cultural capital possessed by them.

The effects on the generation of human capital, the mobilization of resources and the access to information are important for the individuals participating in the gardens because they enable the circulation and better use of resources, in addition to helping the insertion of farmers in local food systems. Some of the effects of social capital end up reaching beyond the garden environment, such as the development of engagement, citizenship and social cohesion. These connections are important for empowerment and cooperation, for obtaining resources for daily activities and for political engagement. The recognized positive effects themselves serve as motivators, or sources, feeding back the formation of social capital, as shown in [Figure 2](#).

The effects of social capital can have a downside, with challenges that make it difficult to create or expand positive social capital – those relationships are represented by the red arrows ([Figure 2](#)). Homophily can be seen as a natural result of the existence of social relationships, and the challenge of perceiving the results can be seen as part of the characteristic of social capital of having diffuse effects. Some practical difficulties are those related to the farmers' routine, which indicate the need for public policies to foster social capital and reduce these costs.

The possibility of converting social capital into economic capital is restricted to the conditions of the network itself, to the symbols recognized by its members and to the way they are recognized (their symbolic capital, in Bourdieusian terms). If they receive donations, it is because they are recognized as a group that values them. On the other hand, if they seek involvement with other initiatives, they recognize the limitations of the power of their position and the capital mobilized within their own networks. In initiatives such as urban gardens in Bogotá, government programs have promoted training for farmers in several districts, strengthening the connection of people and their motivation for urban agriculture ([Sendra & Pita, 2017](#)). The case highlights the importance of the state's continuous action in sustaining and strengthening social networks, changing the relationship of forces in the economic field and facilitating the mobilization of social and economic capital for the initiatives.

5. Conclusion

From the literature review, it can be seen that social capital is important for the generation, acquisition and dissemination of information, mobilization and allocation of resources, commitment to common rules, conflict resolution and that it can have effects on learning, trust, leadership and citizenship. In the urban agriculture context, it is important for accessing resources and influencing policymaking. For these reasons, it should be explored and used in policies and programs for higher effectiveness in supporting farmers.

In this article, the articulation of the theoretical references of social capital and urban agriculture alongside the data analysis, allowed a deeper understanding of social capital in urban agricultural contexts. The results showed aspects that facilitate or hinder social capital formation. Research that focuses on these aspects, as well as on ways of evaluating and monitoring this capital, could contribute to designing appropriate policies and actions to encourage participation and strengthen urban agriculture.

The recognition of aspects of social capital in the conducted interviews shows that its existence is perceived by the members of the garden initiatives as well as its challenges and positive effects.

The results show a network of initiatives with positive and favorable signs for the formation of social capital. They point to paths that lead to greater integration of local communities and to the facilitation and offer of spaces for meetings and dialogue. However, it is necessary to deepen the investigation of ways to support this formation so that its possibilities are not restricted to the possession of durable relationships by the members of a group. Likewise, it is necessary to go further, seeking to understand the relationship of these aspects with the objectives of each garden initiative, integrated with the contextual challenges. It would be interesting to investigate the particularities and common elements within the two modalities studied here – scale urban agriculture and visibility urban agriculture – and the different limitations for the formation of social capital and material resources in which it is converted.

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