Original Article

Exploring the role of social capital in urban citizens' initiatives in the Netherlands

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A B S T R A C T

Objective: This research explores the role of social capital in urban citizens' initiatives in the Netherlands, by using in-depth interviews.
Method: Social capital was operationalized as shared norms and values, connectedness, trust and reciprocity.
Results: The findings show that initiatives form around a shared idea or ambition (shared norms and values). An existing network of relationships (connectedness) is needed for an idea to emerge and take form. Connectedness can also increase as a result of an initiative. Some level of trust between people needs to be present from the start of the initiative. For the initiative to persist, strong in-group connections seem important, as well as a good balance between investments and returns. This reciprocity is mainly about intangible assets, such as energy and friendship.
Conclusion: This study concludes that social capital within citizens' initiatives is both a prerequisite for the formation of initiatives and a result of the existence of initiatives.

Papel del capital social en las iniciativas de los ciudadanos de zonas urbanas en los Países Bajos

R E S U M E N

Objetivo: Explorar, mediante la realización de entrevistas en profundidad, el papel del capital social en las iniciativas de los ciudadanos de zonas urbanas de los Países Bajos.
Método: Se conceptualizó el capital social como normas y valores compartidos, conectividad, confianza y reciprocidad.
Resultados: Las iniciativas se forman alrededor de una idea o ambición compartida (normas y valores compartidos). Es necesaria la existencia de una red de relaciones previa (conectividad) para que una idea surja y tome forma. La conectividad también puede incrementarse como resultado de la iniciativa. Desde el inicio de la iniciativa debe estar presente un nivel mínimo de confianza entre las personas. Para que la iniciativa persista, parecen importantes las conexiones fuertes dentro del grupo, así como un buen equilibrio entre los esfuerzos y los beneficios obtenidos. Esta reciprocidad se refiere principalmente a bienes inmateriales, como la energía y la amistad.
Conclusión: Este estudio concluye que el papel del capital social en las iniciativas de los ciudadanos de zonas urbanas es tanto un requisito para la aparición de iniciativas como el resultado de la existencia de algunas iniciativas.

Introduction

In reaction to a retreating government citizens increasingly take action to work on concrete solutions to societal challenges, thereby contributing to the quality of their living environment and life.[1] In many urban areas of the Netherlands citizens' initiatives take shape, having goals such as maintaining a community garden, caring for elderly or to collectively install solar panels in a neighbourhood. Initiatives are started by a diversity of actors such as urban citizens, farmers, associations and social entrepreneurs. Because citizens act upon their own ambitions and aspirations (such as seeking a sense of fulfilment) through these initiatives, new responses to societal needs are created that might not have been proposed by the market or the public sector.[2–6] Besides addressing local needs, these initiatives create new opportunities by taking a different approach than

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Table 1
Characteristics of interviewed initiatives.

Initiative	Province	Description of initiative	Start year of the initiative	Estimated no. of people involved
#1	Brabant	Overarching aim: a sustainable world. Specific project: a communal vegetable garden. The garden is a spin-off activity of a larger online community for the overarching aim. The garden has been realized and is being maintained.	2009	~20–25 active volunteers
#2	Brabant	A communal vegetable garden in the old garden of a monastery. Still in the process of setting up the garden.	2012	~30 members, of whom 10 active volunteers
#3	Utrecht	Overall goal: (environmental) sustainability. A main project is the collective purchase of solar panels for a whole neighbourhood.	2010	~200 paying members, of whom ~50–55 active volunteers
#4	Noord-Holland	Prize-winning communal garden/small park realized in the middle of an urban neighbourhood when an old building was torn down. In the stage of maintaining the garden.	2010	~50 active volunteers
#5	Drenthe	Communal vegetable garden. Disputes being experienced with the neighbourhood about the realization of the garden.	2014	~10 active volunteers
#6	Drenthe	Communal garden next to an old farm–produce sold to a restaurant and individual households in order to sustain the garden financially	2013	~15 active volunteers
#7	Friesland	Communal garden; on the brink of stopping the initiative because of lack of volunteers and other internal issues.	2013[a]	~5 active volunteers

[a] This initiative seems to have stopped in 2016 – no more activity on their Facebook page and the website does not exist anymore.

the public or the market sector and by having a strong motivational component.

The formation of citizens' initiatives has been linked to (neighbourhood) social capital by different scholars.[7–9] Putnam[7] for example sees the formation of citizens initiatives as an indicator of social capital. Social capital is usually defined as the resources available to individuals and groups through their social networks.[10,11] Social capital is found to be an important resource for communities' and individual health and wellbeing.[12] It is often broken down into different sub-constructs, namely: 1) shared norms and values; 2) connectedness, networks and groups; 3) reciprocity and exchange; and 4) trust.[7,10,11,13–25] Shared norms and values concern certain norms and values or sense of identity that are shared within a network. The connectedness, networks and groups construct refers to the number and nature of (informal) relations that people have between them. The reciprocity and exchange construct refers to what is shared or exchanged within the network of relations. Finally, trust between people and trust in society refer to the belief that someone or that a society is good and honest and will do no harm.[7–9,11–23]

It is known what social capital is and what are the mechanisms that make social capital influence health. However, a clear understanding of how social capital is created is lacking.[20] Patulny et al.[26] state that, although much has been written on the importance and effects of social capital, there is a lack of understanding of the *process of building social capital*. This study aims to explore how social capital plays a role in the formation, realization and success of UCIs. Better understanding of these mechanisms may help practice that aims to increase social capital for example to improve community health and wellbeing.[10,11]

Methods

Since we wished to explore the role of social capital (and the interplay between its sub-constructs) in UCI's, we used a grounded theory approach with semi-structure in-depth interviews.[27] Fifteen key persons, representing seven UCIs in the Netherlands, were interviewed about their experiences with the formation and sustainability of their initiative. The respondents all had a key role within the initiative, like being a board member or one of the initiators. The included UCIs were citizens' initiatives with green, health or sustainable development goals operating within the urban

context. Examples of such initiatives are urban agriculture or urban gardening. The reason all the studied initiatives had a focus on 'green goals' was that this study was part of a larger project in which green citizens' initiatives were studied. The seven initiatives were selected from 45 cases based on an inventory of UCIs in prior research on information capital in citizens' initiatives. To compile this inventory, firstly, interviews were held with key persons concerning the role of information in citizens' initiatives, and examples of initiatives were sought by means of an internet search, social media, networks, and previous and related research on UCIs. This resulted in a typology of 45 examples of UCIs. Of these 45 initiatives, nine were selected for the first research phase of the project on the criterion of variety in the operationalization of objectives, approaches and types of groups. From these nine, we selected two initiatives in which social capital seemed to play an important role. We further extended this with a convenience sample of five more initiatives that we encountered during presentations and discussion sessions relating to the larger research project. Table 1 provides an overview of the selected initiatives and their characteristics. The interviews were held between January 2013 and September 2014.

Data collection

An interview guide was developed based on an operationalization of: 1) shared norms and values; 2) connectedness, networks and groups; 3) reciprocity and exchange; and 4) trust. The operationalization was translated into interview questions that prompted the respondents to talk about their experiences in their initiatives in relation to each aspect. The interview guide is attached in Appendix 1. The resulting stories of experiences within the initiatives allowed us to explore how people within UCIs experience the role of social capital in their initiative.

We were interested in discussing the role of social capital in the initiative and therefore the interviews were set up as duo-interviews, interviewing two persons from one initiative at the same time. Interviewees could confer with, and respond to, each other reporting on relationships and roles within the initiative.[28] All interviews lasted between 45 and 120 minutes and were conducted and analysed by the first author (CW) and a research assistant.

Table 2
Summary of results.

Sub-contruct	Analysis	Quotes
Shared norms and values	- Binding and selective mechanism - Mismatch in norms and values can cause conflict and hamper success - Relates to sense of belonging	- I thought: 'Ha, finally someone who wants to home-grow organic food!' (#5) - I don't know how to put it, but you have this sort of selection. Not that everyone needs to live up to a certain norm, but we don't serve cappuccino. There's coffee or no coffee. Sometimes you get people who think it takes too long and sometimes they even say that. Then I think, you don't realize where you are. (#4) - I do see that as the history of the garden, that we all came in very much as individuals. And to set up a garden that's fine actually, because you have all these people that just go for it. . . but at a certain point you have to start collaborating and that didn't work. (#7)
Connectedness	- It is a prerequisite for successful formation of the initiative: pre-existing networks provide a place for new ideas to emerge and take form; it gives access to skills and resources, and it generates the energy that is needed to get things done. - It increases as a result of the initiatives - Strong in-group connections are needed to sustain the initiative	- . . . and all of a sudden because they found one another and you do not have to do it alone, it takes off like a rocket. (#1) - M: if you draw up that network. . . V: a sociogram. M: . . .then you have quite some branches. But that's a good thing. The more complicated the better, I think. If something drops out in one place, it does not really matter. The network, but also how things work in nature, as long as it is as complicated as possible, it is resilient. (#2) - When you only have the three of you so to say, then it becomes really tight because that connection puts too much strain on others. And that is on the one hand I think also what stands in the way of that collective thought, mission, vision. . . You're with so few people in that sense that you remain three individuals. (#7)
Reciprocity and exchange	- Functions as an important motivator to (continue to) participate in the initiative - Both material and immaterial reciprocity, but immaterial resources seem most important - As soon as investments and returns are off-balance, people become unhappy or do not want to participate anymore. - People seem to keep track of how much they invest and automatically keep a balance between their investment and return. - What people invest can change over time or differ per initiative or closeness of the connection.	- Well, as long as you get energy out of it, you continue to invest. That's how it works with energy, and that's certainly still the case. (#4) - At the start, we enjoyed it [network events], but what's in it for us. It takes a lot of time. We had a rule like, if it doesn't have a clear added value for the neighbourhood, we don't want to be involved. (#3) - It showed that people who did less [work in the garden] already thought for themselves like I'll take a little less [of the harvest]. (#1)
Trust	- Trust influences who joins and supports the initiative. - Knowing one another can increase trust. This might partly explain why people mainly join through people they already know (connectedness) - People that join have trust in the group and its goals or ambitions - In the initiatives that we studied, trust grew over time as people got to know one another better. - Trust also seems to become increasingly important over time	- About the supporting processes you just talked about, [person 1] was part of such a committee a couple of times. Then you just notice that people have skills. Then it makes sense to ask them on board. (. . .) When you ask specific people, you know what you'll get. (#4) - "That [trust] still has to grow I think. There's a couple of people you don't see that often. (#2) - "It's funny you mention that, because I think there's a difference between how we do things now and how we would have done things in the starting phase. Now we're like "well, that [new plan] sounds good and we as the board don't have to invest a lot of energy to get it going". It's also because you know these people, but in the beginning we would have meticulously looked at it and would have spent about one or two nights of brainstorming. (#3)
Emerging themes	- Experiences of success increases trust - Human capital of the core group plays a role in the way the initiatives deal with all sorts of challenges. - the element of time seems to play a role in relation to different aspects of social capital. The role of the different sub-constructs seems to change slightly as the initiatives evolve.	- "Perhaps those few successes were needed to get some trust from the neighbourhood, the municipality and each other. That people think like "he has skills; it's not a one-day fly. A bit of noise and it's gone again". You need a bit of time and success to get rooted." (#3) - "I think success. That's something people like to connect to. We have sort of proven ourselves. Success has many friends." (#4)

Analysis

The verbatim transcripts of the interviews were analysed thematically and coded in Atlas.ti 7.1.8., using top-down and bottom-up coding.[27,29] All interviews were coded by two researchers (CW and a research assistant) independently and compared afterwards. Any discrepancies were discussed between the researchers until agreement was reached. In accordance with the Grounded Theory Approach,[27] the analysis was used to understand the interplay between the different sub-constructs of social capital, in order to better understand how social capital is formed. Finally, a figure was constructed to visualize the observed relations.

Results

This section describes how shared norms and values, connectedness, reciprocity and trust play a role in the seven initiatives. The

numbers behind quotes refer to the initiatives listed in Table 1. A summary of the results is provided in Table 2.

Shared norms and values

Shared norms and values was found to work both as a binding mechanism (through having shared ideals or ambitions) and a selective mechanism for who can be part of the group. Mismatching shared norms and values can lead to conflict and hamper the initiative's success.

A shared idea, ideal or ambition can make people connect and feel part of the group (or not) (sense of belonging).

I thought: 'Ha, finally someone who wants to home-grow organic food!' (#5)

People that have or develop a devious philosophy, do not fit well in the group. This is often described by the respondents in terms of 'they just don't get the idea of it.'

I don't know how to put it, but you have this sort of selection. Not that everyone needs to live up to a certain norm, but we don't serve cappuccino. There's coffee or no coffee. Sometimes you get people who think it takes too long and sometimes they even say that. Then I think, you don't realize where you are. (#4)

We observed in two initiatives (5 and 7) how mismatching shared norms and values can lead to conflict and hamper the initiative's success. Initiative 5 had quite a lot of trouble getting started. Even though the initiative was meant to be part of the neighbourhood, the core values and ideas of the people that started the initiative did not match the ideas and priorities of other people in the neighbourhood, leading to many quarrels and hampering the successful start of the initiative. Initiative 7 also seemed to have trouble with forming their group around a central idea and appear to be less successful in sustaining their initiative because of this. They describe how everyone came into the initiative having their individual goals and ideas and how that started to be more problematic along the way, because there was no vision that connected these people.

I do see that as the history of the garden, that we all came in very much as individuals. And to set up a garden that's fine actually, because you have all these people that just go for it... but at a certain point you have to start collaborating and that didn't work. (#7)

Connectedness

We observed that pre-existing networks of relations provide a place for new ideas to emerge and take form; it gives access to skills and resources, and it generates the energy that is needed to get things done.

. . . and all of a sudden because they found one another and you do not have to do it alone, it takes off like a rocket. (#1)

In that sense, connectedness is a prerequisite for the formation of citizens' initiatives. Connectedness can also be increased as a result of the formation and existence of citizens' initiatives. Strong in-group connections and a sufficient network size was mentioned by several respondents to make the initiative evolve and proliferate.

M: if you draw up that network. . . V: a sociogram. M: . . .then you have quite some branches. But that's a good thing. The more complicated the better, I think. If something drops out in one place, it does not really matter. The network, but also how things work in nature, as long as it is as complicated as possible, it is resilient. (#2)

Initiative 7 confirms this idea by experiencing quite the opposite. It has had trouble with involving more people and now has difficulty in sustaining the initiative.

When you only have the three of you so to say, then it becomes really tight because that connection puts too much strain on others. And that is on the one hand I think also what stands in the way of that collective thought, mission, vision. . . You're with so few people in that sense that you remain three individuals. (#7)

Reciprocity and exchange

Reciprocity and exchange appears to function as an important motivator to (continue to) participate in the initiative. Both material (e.g. tea, biscuits, seedlings) and immaterial (e.g. energy, know-how) things are mentioned as resources that are exchanged, but the immaterial resources seem most important.

As soon as investments and returns are off-balance, people become unhappy or do not want to participate anymore.

At the start, we enjoyed it [network events], but what's in it for us. It takes a lot of time. We had a rule like, if it doesn't have a clear added value for the neighbourhood, we don't want to be involved. (#3)

It seems that, in general, people keep track of how much they invest and automatically keep a balance between their investment and return.

It showed that people who did less [work in the garden] already thought for themselves like I'll take a little less [of the harvest]. (#1)

Some respondents mention cases when the balance is off, and how this can lead to frustration within the group.

What people invest can change over time or differ per initiative or closeness of the connection. Whereas energy and fun seem most important in keeping the balance between investment and return, money was mentioned by some as a (temporary) solution to keep the balance right, if a person for instance does not have time to participate fully for a while.

Trust

Trust influences who joins and supports the initiative. People who already belong to the initiative ask certain people to join because they trust their capabilities or personality.

About the supporting processes you just talked about, [person 1] was part of such a committee a couple of times. Then you just notice that people have skills. Then it makes sense to ask them on board. (. . .) When you ask specific people, you know what you'll get. (#4)

Knowing one another can increase trust. This might partly explain why people mainly join through people they already know (connectedness), although joining through existing networks might also be explained through the idea of 'birds of a feather flock together': when you already know one another, there is a higher chance of having similar ideas and values (shared norms and values).

People that join have trust in the group and its goals or ambitions. In the initiatives that we studied, trust grew over time as people got to know one another better. By spending more time together and getting to know one another better, people know better what to expect of one another. The evaluation of these expectations can lead to an increase or a decrease in trust. Meanwhile, trust also seems to become increasingly important over time–trust in the viability of the initiative seems to interact with feelings of
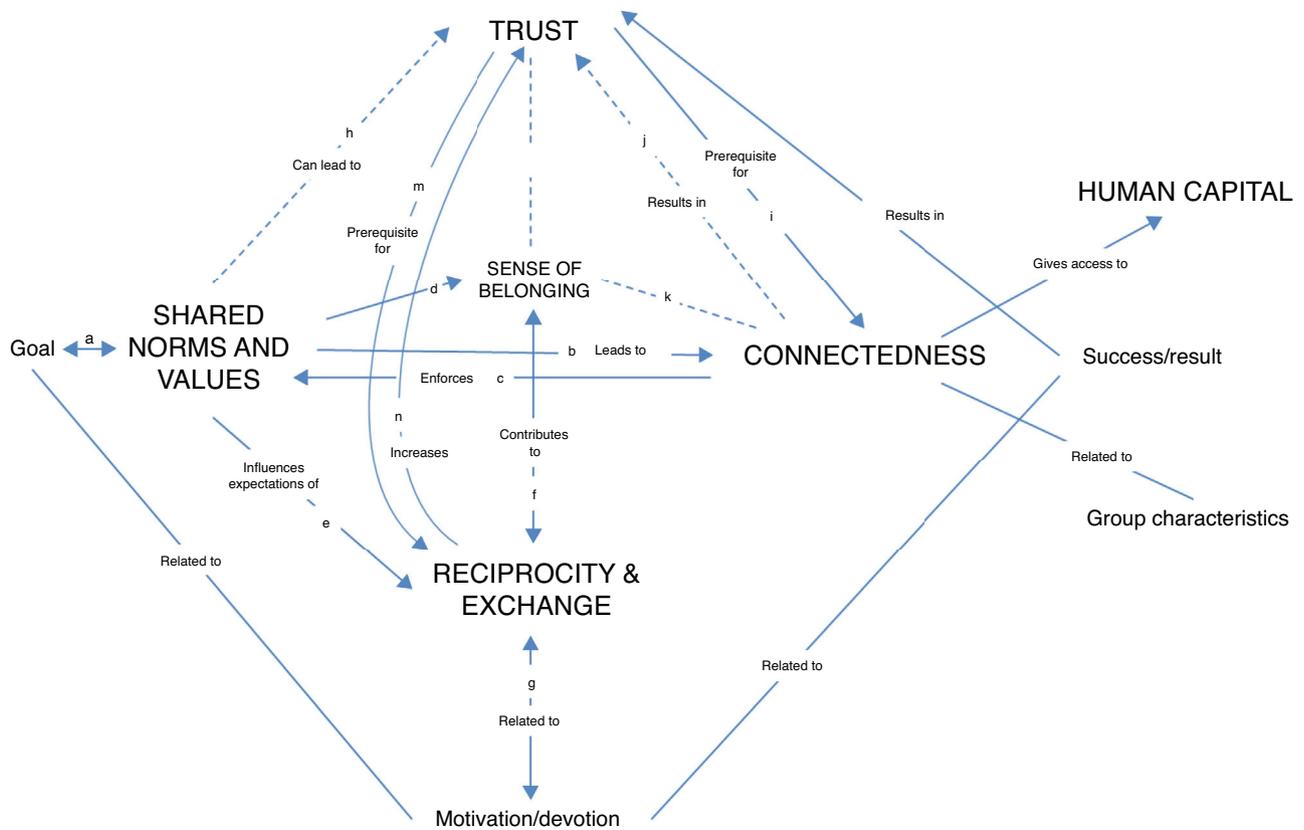
Figure 1. Observed connections between the studied sub-constructs of social capital: shared norms and values, connectedness, reciprocity and exchange, and trust.

reciprocity and the motivation to continue involvement in the initiative.

Emerging themes

Emerging themes were the importance of success, luck and time, and the personalities and human capital of the core partners in the initiatives.

We observed that experiences of success or seeing results increased trust between people within the initiatives, trust in the sustainability of the initiatives, and also the trust of outsiders (e.g., the municipality) in the role of the initiatives.

Another emerging theme was the importance of human capital. Human capital refers to the knowledge, information, ideas, skills, and health of individuals.[30] Human capital seems to be related to connectedness in the sense that the composition of the group gives access to a certain type and amount of human capital. We also observed that human capital plays a role in the way the initiatives deal with all sorts of challenges they come across, and thus the success of the initiatives.

Finally, the element of time seems to play a role in relation to different aspects of social capital. The role of the different sub-constructs seems to change slightly as the initiatives evolve. In particular, trust seems to evolve over time. A certain amount of trust is needed to connect to the initiative at all, but as people get to know one another and become more familiar with the core values of the initiative, this trust seems to grow. Experiences of success in all cases seem to build trust in the initiative. Furthermore, as the initiative evolves, there seems to be a strong interaction between the sustainability of connections (having formed a stable group) and the feelings of reciprocity that are experienced. Reciprocity is needed to sustain connections, but success in making these connections is also experienced as rewarding.

Connections between sub-constructs

The observed connections between the sub-constructs of social capital are presented in Figure 1.

An initiative starts around a shared idea or ambition (shared norms and values) related to the initiative's goal (a). In the interviews, we observed that having a shared idea or ambition can lead to the formation of a group (connectedness) (b). However, this seems to be a circular process, as the binding idea is usually not established by a single person, but between friends or neighbours. We observed that shared norms and values and connectedness enforce each other (c). The relationship between shared norms and values and connectedness is likely partly explained by sense of belonging: shared norms and values between people are likely to result in a sense of belonging, which makes it more likely that people connect (d).

The shared idea that makes the group a group, influences the expectations that people have of reciprocity and exchange (e). When people comply with the expectations that exist around reciprocity and exchange, this can contribute to feeling part of the group (sense of belonging) (f). Conversely, feeling part of the group is mentioned by several respondents as being part of the reciprocity (f). Sense of belonging is then an outcome that makes it worthwhile to invest one's time and energy in the initiative. This is why we also see reciprocity as being related to motivation (g).

All sub-constructs seem to be related to trust in some way. Having a shared idea (shared norms and values) seems to provide enough trust in one another to form a group (h). We observed a strong interplay between trust and connectedness, where trust seems to be a prerequisite to connect to other people (i), and being part of the same group also seems to increase feelings of trust (j). It may be that this relation between being part of the same group and trust, is a more indirect relationship between connectedness, sense of belonging and trust (k and l).

The creation of trust from within the initiative also seems to be dependent on time, where trust is seen to grow over time in the initiatives that we observed. A critical remark that needs to be made here is that the opposite can also be true, even though our data did not reveal this (see limitations in the discussion). Trust can also decrease over time when, for example, people do not put in enough effort, or when efforts do not lead to results.

Finally, trust also seems to be a prerequisite for the functioning of reciprocity and exchange (m). Part of the reason why people are willing to invest their time and energy in the initiatives is because they trust the fact that there will be reciprocity in the sense of feelings of fulfilment, joy, fun, and they trust that other people will also do their part. When reciprocity is indeed experienced, this in turn increases trust (n).

Discussion

The aim of this research was to explore the role of social capital within UCIs. From the experiences of people involved in UCIs, all four mentioned aspects of social capital play an important role.

We observed multidimensional connections between the different sub-constructs of social capital, some of which seem to be circular, whereby it is unclear which aspect needs to be there first (e.g., the role of shared norms and values and connectedness in the formation of the initiative).

Several connections we observed are confirmed by literature. First, the observed connection between shared norms and values and trust (h) is also confirmed in other fields of study.[31,32] Secondly, we claim that trust fulfils different roles within the initiatives, being both a prerequisite and a result. This twofold role of trust can also be recognized in the literature, when for example Putnam[7] assumes that the act of joining an initiative is fundamental for creating trust, and Fukuyama (in Verhaeghe[33]) claims that confidence within society first needs to exist for initiatives to take form. This implies that the trust aspect has different dimensions within the social capital concept. The multiple dimensions of trust are also mentioned in trust literature.[34–36] Finally, we saw that reciprocity increases trust. Both Li[32] and Pretty and Ward[23] also argue that reciprocity plays an important role in trust-building processes.

Circularity within social capital

The circularity that we have observed in the connections between the aspects of social capital has also been observed by other scholars studying social capital. For example, Poder[20] identifies the circularity and identification of the concept of social capital as a problem and states that it has not clearly been established what leads to what. Like Carrillo-Álvarez and Riera-Romaní,[11] we do not necessarily see the circularity of social capital as a weakness, but it does raise the discussion of whether, when studying social capital, we are studying an outcome, a process or both. Also, the circularity of the concept may imply that the concept has not been studied to the level of detail that allows for distinction between different aspects of the concept.

On the basis of what we observed in this research, we propose that studies on the role of social capital should take into account the circularity and multidimensionality of the concept. The different aspects that make up what we describe as the phenomenon of social capital seem to interact at different levels and develop over time. Perhaps social capital studies could benefit from taking a systems thinking perspective, in order to do more justice to the complexity of the concept.[37–39]

Social capital and public health

Within the field public health we often aim for communities that are lively and attractive to live in, which are socially cohesive and environmentally sustainable. Understanding social capital in communities therefore can contribute to public health by adding new knowledge on how social network interventions may be designed. Based on the results of this study UCIs require space for encounters, celebrating successes and a government that facilitates rather than steers local communities.[40]

Strengths and limitations

One strength of the current research is its contribution to understanding how social capital plays a role within citizens' initiatives, a subject that to date has been rather unexplored. Another strength is that the analysis is based on experiences of a divergent group of UCIs and that the analysis is therefore closely connected to the actual everyday reality of the studied initiatives.

A potential weakness is the prior limitation to four sub-constructs to indicate social capital. Although limiting the analysis to these four concepts may not do justice to the inherent complexity of the social capital concept, this choice was made to facilitate a comprehensible analysis of the role of social capital within citizens' initiatives. As we could not find any prior research on the role of social capital within initiatives that could be used to aid analysis, some simplification of the concept was needed. Also, the small sample of initiatives and the fact it was largely a convenience sample limit the generalizability of this study.

Finally, it stands out that the experiences with trust all seem to be rather positive in our data. As it is known from other studies that trust can also be lost in the process of group formation, this may point at a selection bias, whereby we included only initiatives that have been reasonably successful. This should be taken into account when the findings of this study are being interpreted.

Recommendations for further research

The current research should be repeated and extended to more initiatives, also in sectors with other than green and sustainable development goals. The proposed relationships between concepts should eventually be tested by quantitative research to collect additional evidence on their strength and direction.

What is known about the topic?

Social capital is known to be an important resource for communities' and individual health and wellbeing. It is known that the formation of citizens initiatives is connected to social capital. It is debated however if such initiatives are a result of social capital, if social capital builds up as a result of such initiatives, or both. Although much has been written on the importance and effects of social capital, there is a lack of understanding of the process of building social capital.

What does this study add to the literature?

This study explored how social capital plays a role in the formation, realization and success of urban citizens initiatives. We observed multidimensional connections between the different sub-constructs of social capital, some of which seem to be circular. Better understanding of these mechanisms may help practice that aims to increase social capital to improve community health and wellbeing.

Editor in charge

Carlos Álvarez-Dardet.

Transparency declaration

The corresponding author on behalf of the other authors guarantee the accuracy, transparency and honesty of the data and information contained in the study, that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

Authorship contributions

This research was part of a four year project executed by all authors. The principal idea and design of this study was formed by all authors (CW, LV, RvD, JH and IS). Data collection and analysis was performed by CW and a research assistant. The interpretation of the results was discussed among all authors. CW wrote the manuscript with help of LV. All authors read and commented on the manuscript.

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Conflicts of interest

None.

Appendix.

A.1. Interview guide

This is a translation of the original interview guide, which was in Dutch. The questions are meant as a guideline for a semi-structure interview, thus the guide indicates which themes were addressed, but the formulation of the questions has not been taken literally.

A.1.1. Introduction and consent

- This interview is part of a research on the role of information and knowledge in green urban citizens' initiatives
- Interviewer introduces herself and explains the aims of the project
- We'd like to hear about your ideas and experiences–there are no right or wrong answers
- Could I please record this conversation to facilitate the transcription of this interview? (verbal consent)

A.1.2. Description of the initiative and the role of the interviewees

- Could you please tell me more about yourself and your role in the initiative? How did the initiative start, how did it develop and where are you now?
- How would you describe your relationship with the municipality?
- Do you experience support (financial, knowledge, network, etc.) of the municipality? If yes, could you give examples that show the way the municipality supports your initiative?

A.1.3. Rules, norms and sanctions

- What is the binding idea of your initiative (vision)? [norms, implicit rules]
- What happens if people do not act in line with this idea within the initiative? [sanctions]
- What do you expect of your colleagues within this initiative? What do they expect of you? [shared values]
- Did you put these expectations down on paper, as rules or regulations? [explicit rules, norms]
- What happens/how do people react if people do not comply to these expectations? [sanctions]
- How much are you prepared to invest in the initiative/what would you be prepared to do for the initiative? Why do you want to invest in the initiatives? What do you expect back? [diffuse reciprocity]
- Description of a situation, for example: a new persons joins the initiative/you have an idea for the initiative that you think needs to be acted upon. Could you please describe how you would act in this situation? [implicit rules, norms] With who would you discuss this? Why? How would other people involved respond to this? Etc. (adapt description of the situation based on the information the initiative has given in the introduction)

A.1.4. Connections, networks and groups

- Which people/groups are involved in the initiative? (fill in table with names, roles and connections) [connections]
- What is the reason for these people to be involved? What do they add to the initiative? What are they getting out of it? [reciprocity] Which skills/resources/know how of other people do you use in your initiative? What are they getting in return/with what reason are they involved? [reciprocity]
- How would you describe the relationship with these people? One-sided/two-sided, intensive, not intensive, . . .?
- Could you make a division of the actors in those that are more and less important to reach the goals of the initiative (number 1 as most important, 2 slightly less important, etc.)? What makes these actors more or less important for the initiative?
- Is there anything you do to strengthen existing connections? [internal]
- Is there anything you do to make new connections? [bonding & bridging]
- Are there groups/actors outside of your initiatives that you are in contact with? What is the reason for having those contacts? What can your offer each other? [external relations, linking, bridging]

A.1.5. Trust

- Do you feel as if you can trust people within your initiative? How does that show? [internal trust]
- If you would be unable to execute your task in the initiative for a while, would someone else in the initiative take over? [internal trust]
- Do you feel as if you can trust actors/partners outside of the initiative? What makes that you feel you can (not) trust them? [external trust]
- If your initiative would not exist, would another group in society take care of the 'issue' (e.g. sustainability) and do something about it? [societal trust] (apply question to the initiative, e.g.: if initiative #1 would not exist, would someone else have started such a garden?)

A.1.6. Conclusions

- Short summary of what has been discussed. Is there something you would still like to add or tell me?

  Thank you for your time!

References

1. Rosol M. Community volunteering as a neo-liberal strategy? The case of green space production in Berlin. Antipode. 2012;44:239–57.
2. van Dam R, Duineveld M, During R. Delineating active citizenship: the subjectification of citizens' initiatives. Journal of Environmental Policy & Planning. 2014;17:163–79.
3. van Dam R, Salverda I, During R. Strategies of citizens' initiatives in the Netherlands: connecting people and institutions. Critical Policy Studies. 2014;8:323–39.
4. De Wilde M, Hurenkamp M, Tonkens E. Flexible relations, frail contacts and failing demands: how community groups and local institutions interact in local governance in the Netherlands. Urban Studies. 2014;51:3365–82.
5. Eriksson K. Self-service society: participative politics and new forms of governance. Public Administration. 2012;90:685–98.
6. Van der Graaf L, Van Hulst M, Michels A. Enhancing participation in disadvantaged urban neighbourhoods. Local Government Studies. 2015;41:44–62.
7. Putnam RD. Bowling alone: the collapse and rivival of American community. New York: Simon & Schuster; 2000.
8. Ruef M, Kwon S-W. Neighborhood associations and social capital. Social Forces. 2016;95:159–90.
9. Stoker G, Smith G, Maloney W, et al. Voluntary organisations and the generation of social capital. In: Boddy M, Parkinson M, editors. City matters: competitiveness, cohesion and urban governance. Bristol, UK: Policy Press; 2004. p. 389–407.
10. Villalonga-Olives E, Kawachi I. The measurement of social capital. Gac Sanit. 2015;29:62–4.
11. Carrillo Álvarez C, Riera Romaní J. Measuring social capital: further insights. Gac Sanit. 2017;31:57–61.
12. Kawachi I, Berkman L. Social cohesion, social capital, and health. In: Berkman L, Kawachi I, editors. Social epidemiology. New York: Oxford University Press; 2000. p. 174–90.
13. Putnam R, Light I, de Souza Briggs X, et al. Using social capital to help integrate planning theory, research, and practice: preface. Journal of the American Planning Association. 2004;70:142–92.
14. Bourdieu P. The forms of capital. In: Richardson J, editor. Handbook of theory and research for the sociology of education. New York: Greenwood Publishing Group; 1986. p. 241–58.
15. Bhandari H, Yasunobu K. What is social capital? A comprehensive review of the concept. Asian Journal of Social Science. 2009;37:480–510.
16. Bowles S, Gintis H. Social capital and community governance. The Economic Journal. 2002;112. F419-F36.
17. Coleman JS. Social capital in the creation of human capital. American Journal of Sociology. 1988;94:S95–120.
18. Kritsotakis G, Gamarnikow E. What is social capital and how does it relate to health. Int J Nurs Stud. 2004;41:43–50.
19. Lochner K, Kawachi I, Kennedy BP. Social capital: a guide to its measurement. Health & Place. 1999;5:259–70.
20. Poder T. What is really social capital? A critical review. Am Soc. 2011;42:341–67.
21. Warner M. Building social capital: the role of local government. The Journal of Socio-Economics. 2001;30:187–92.
22. Mohan G, Mohan J. Placing social capital. Progress in Human Geography. 2002;26:191–210.
23. Pretty J, Ward H. Social capital and the environment. World Development. 2001;29:209–27.
24. Pretty J. Social capital and the collective management of resources. Science. 2003;302:1912–4.
25. Fey S, Bregendahl C, Flora C. The measurement of community capitals through research. Online Journal of Rural Research & Policy. 2006. (Accessed 13 June, 2016.) Available at: http://newprairiepress.org/ojrrp/vol1/iss1/1/
26. Patulny R, Siminski P, Mendolia S. The front line of social capital creation – a natural experiment in symbolic interaction. Social Science & Medicine. 2015;125:8–18.
27. Lyons E, Coyle A. Analysing qualitative data in psychology. London: Sage; 2016.
28. Morgan DL, Ataie J, Carder P, et al. Introducing dyadic interviews as a method for collecting qualitative data. Qualitative Health Research. 2013;23:1276–84.
29. Friese S. Qualitative data analysis with ATLAS. ti. London: Sage; 2014.
30. Becker GS. The age of human capital. 2002. (Accessed 30 May, 2017.) Available at: http://media.hoover.org/sites/default/files/documents/0817928928_3.pdf
31. Nahapiet J, Ghoshal S. Social capital, intellectual capital, and the organizational advantage. Academy of Management Review. 1998;23:242–66.
32. Li L. The effects of trust and shared vision on inward knowledge transfer in subsidiaries' intra- and inter-organizational relationships. International Business Review. 2005;14:77–95.
33. Verhaeghe PP, Tampubolon G. Individual social capital, neighbourhood deprivation, and self-rated health in England. Social Science & Medicine. 2012;75:349–57.
34. Herian MN, Neal TM. Trust as a multilevel phenomenon across contexts: implications for improved interdisciplinarity in trust research. In: Shockley E, Neal TMS, Pytlikzillig LM, et al., editors. Interdisciplinary perspectives on trust: towards theoretical and methodological integration. Switzerland: Springer International Publishing; 2016. p. 117–30.
35. Pytlikzillig LM. Consensus on conceptualizations and definitions of trust: are we there yet? In: Shockley E, Neal TMS, Pytlikzillig LM, et al., editors. Interdisciplinary perspectives on trust: towards theoretical and methodological integration. Switzerland: Springer International Publishing; 2016. p. 17–47.
36. Lewicki RJ, McAllister DJ, Bies RI. Trust and distrust: new relationships and realities. Academy of Management Review. 1998;23:438–58.
37. Waltner-Toews D, Kay J. The evolution of an ecosystem approach: the diamond schematic and an adaptive methodology for ecosystem sustainability and health. Ecology and Society. 2005:10.
38. Golden SD, Earp JAL. Social ecological approaches to individuals and their contexts: twenty years of health education & behavior health promotion interventions. Health Education & Behavior. 2012;39:364–72.
39. Perkins DD, Hughey J, Speer PW. Community psychology perspectives on social capital theory and community development practice. Journal of the Community Development Society. 2002;33:33–52.
40. Hassink J, Salverda I, Vaandrager L, et al. Relationships between green urban citizens' initiatives and local governments. Cogent Social Sciences. 2016;2:1250336.