EMBARKING ON THE SOCIAL INNOVATION JOURNEY: A SYSTEMATIC REVIEW REGARDING THE POTENTIAL OF CO-CREATION WITH CITIZENS

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Abstract

Innovation and especially social innovation is a 'magic concept' that during the last years has been embraced as a promising reform strategy for the public sector. It is argued that it is important for social innovation that it is being co-created with citizens. However, to date there are no overviews on co-creation during innovation, which systematically analyze the literature concerning the forms, antecedents and effects of co-creation. This paper therefore conducted a systematic review to retrieve studies on co-creation. It also included related literature on co-production. 49 peer-reviewed articles in the period from 1987-2013 were included. In general, most studies employ a qualitative case study approach. Quantitative studies are scare. Most studies have been conducted in the healthcare or education sector. The review further reveals that in the level of citizen involvement is often rather low; citizens are only acting as co-implementer, not designers or initiators. Considering the factors influencing co-creation, we found that an administrative culture of fear and risk-aversion and not accepting citizens as partners are strong barriers. While factors influencing co-creation where often studied, there seems to be much less research on the outcomes or objectives of co-creation. Co-creation is often also seen as a value in itself. We conclude by summarizing the results and providing a future research agenda for thoroughly studying co-creation during public innovation.

Keywords

- Innovation
- Social innovation
- Public sector reform
- Co-creation
- Literature review

1   Introduction

Social innovation and co-creation are 'magic concepts' that during the last years have been embraced as new modernization or reform strategy for the public sector (Pollitt & Hupe, 2011). For instance, President Obama founded a Social Innovation Fund. This fund is a policy program of the Corporation for National and Community Service (CNCS), which combines public and private resources to grow promising community-based solutions that have evidence of results in any of three priority areas: economic opportunity, healthy futures, and youth development. The idea behind this fund is stated in a speech that Obama gave on June the 30th, 2009: "Solutions to America's challenges are being developed every day at the grass roots -- and government shouldn't be supplanting those efforts, it should be supporting those efforts" [1]. The British prime-minister Cameron incorporated social innovation as well in his view on the so-called 'Big Society'. In this manifest, dated 2010, he tried to reframe the role of government, thereby embracing the idea of social entrepreneurship. The purpose is to give local communities more power and to encourage people to play an active role in these communities. The assumption is that these communities set up co-operations, charities, mutual and other social enterprises to deal with the local and concrete needs that citizens encounter.[2] Last but not least also the European Commission has embraced social innovation as a relevant topic on the reform agenda. Social innovation is "about new ideas that work to address unmet needs. We simply describe it as innovations that are both social in their ends and in their means"[3].

Social innovation is, thus, perceived as an inspiring concept because it stimulates people, politicians and policy makers to explore and implement new ideas about the way how a society deals with challenges that are vital for the functioning for this society as a political community; like the growing ageing of the population, the budgetary crises, the quality of our educational system or the regeneration of socially and economically deprived cities and regions (Mulgan, 2007). However, social innovation is a vague and fuzzy concept which is hard to operationalize. Not only it is difficult to define what an innovation is, - especially in relation to the concept "change"- , it is also difficult to understand the meaning of the adjective 'social'. In doing so, the risk might be that social innovation is everything….. and nothing at once.

Important in the concept of innovation is that it deliberately seeks the active participation of citizens and grass roots organizations in order to produce social outcomes that really matter. Participation is seen as a way of securing that citizen needs are really addressed in the innovations to be explored. Hence, social innovation is seen as a process of co-creation, as the outcome of a process of participatory governance. According to the European Commission (2011:30) "social innovation mobilizes each citizen to become an active part of the innovation process". But, if citizen participation is considered as a necessary condition, what do we know not about the conditions under which citizens are prepared to embark on this 'social innovation journey' (cf. Van de Ven et al.,2008)?

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[1] http://www.whitehouse.gov/administration/eop/sicp/initiatives/social-innovation-fund
[2] **^** http://www.guardian.co.uk/commentisfree/2010/apr/14/david-cameron-big-society-conservatives 14-Apr-2010
[3] http://ec.europa.eu/enterprise/policies/innovation/policy/social-innovation/index_en.htm

Based hereon, in this paper our central question is*: What are relevant drivers and barriers for citizens to participate in social innovations in the public sector that are based on the idea of co-creation, and what are relevant outcomes?* This research question is comprised of three subquestions:

1. What is the <u>object of co-creation</u> with citizens, in which <u>domains</u> can and what are relevant <u>forms</u>?
2. What are critical <u>factors</u> that influence the way in which citizens co-create in the public sector?
3. What are <u>outcomes</u> of co-creation processes with citizens?

Analyzing this is relevant as it refers to the representation and participation of rather 'weak interests' in public innovation processes which also influence the effectiveness and legitimacy of social innovation as a reform strategy. Citizen participation as such is not new and has a long tradition of study in public administration, but is interesting to see that it is linked to other goals. Therefore it gets another connotation. Given the empirical, but scattered knowledge we have gained so far, questions can be asked regarding the plausibility of this assumption. In order to assess drivers and barriers that influence the way in which and to what extend citizens actually engage in social innovation, we will conduct a systematic review of the relevant literature. In this paper we will focus on the role of citizens in the co-creation/co-production in public innovation, public service delivery and policy development. [4]

The article is structured as follows. Section 2 describes a theoretical background on social innovation. Section 3 focuses on the methods of conducting the systematic review, such as search strategy and the eligibility criteria for selecting studies. Section 4 describes the results of the systematic review. As an outcome of this review we present a theoretical framework which helps us to understand the conditions under which co-creation with citizens in social innovation occurs, in order to produce social innovation outcomes that are considered as being able to meet the needs of citizens.

However, addressing the nature of our systematic literature review and the outcomes of this review, we will discuss some relevant concepts, because they provide the necessary background that is needed to understand the notion of the noun ' innovation' and the adjective ' social'.

2   Social innovation and co-creation: some relevant backgrounds

2.1   Background on innovation

Innovation can refer to different forms, thereby looking at the outcomes of an innovation. For instance, in the literature a distinction is made between market and product innovations, process innovations, technological innovations, management and organizational innovations, governance innovations, conceptual and institutional innovations (Schumpeter, 1942; McDaniel, 2002; Mulgan and Albury, 2003; Fagerberg et al, 2004; Moore and Hartley, 2008; Windrum, 2008). An innovation itself has been mostly defined as "an idea, practice or object that is perceived as new that is brought into implementation"

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[4] In this specific paper we only focus on co-creation in public innovation and on co-production in the public sector. We intend to extent our review to other domains in which citizen participation plays a role, thereby focusing our review on 'public participation', 'interactive governance and policy making and 'community participation'.

(Rogers, 2003, p. 12; Moore & Hartley, 2008, p.4; Fagersberg et al., 2005). However, one of the founding fathers of modern innovation theory, Joseph Schumpeter (1942), argued that, when studying innovations, the emphasis should be put on the process of innovation and the ability to understand how and why innovations occur (Fagersberg, et al. 2005). Schumpeter defined innovation as a process of creative destruction in which 'new combinations of existing resources' are achieved. In his view, innovation cannot be separated from entrepreneurship. They are two sides of the same coin. He defines entrepreneurship as 'Die Durchsetzung neuer Kombinationen'. In other words, as the will and ability to achieve new combinations that have to compete with established combinations. Hence, innovation requires change and the willingness to learn. Important in this learning process is how to deal with uncertainty. It is argued that one simply, when pursuing an innovation, does not know what of the possible options is the best to pursue, what is the chance that the innovative option being pursued will be the most successful one . This implies that risks have to be taken (Fagersberg, et al. 2005). Moreover it is important to make a distinction between change and innovation, because change is not always an innovation (Lundvall et al., 1992; Rashmanm & Hartley; 2002; Downe, Hartley & Rashman, 2004; Korteland & Bekkers, 2008). The important factor is how radical the innovation is; what the level of 'newness' is in terms of creating a discontinuity with past practices (Osborne & Brown, 2005). A distinction can be made between a) incremental innovations, which can be defined as minor changes in existing services and processes, b) radical innovations, which fundamentally change the existing ways of organizing or delivering services as well as the production of fundamentally new products and services and c) systematic or transformative innovations, which are defined as major transformations that emerge, for instance, from the introduction of new technologies (like the steam engine or the internet) (Mulgan & Albery, 2003; Osborne & Brown, 2005).

Furthermore, this learning process does not stand alone. Innovation is not something that can be attributed to capacities and capabilities of a specific person (the entrepreneur as Schumpeter presumed), or a systematic process of research and development that is been institutionalized in laboratory or a R & D department (like Drucker, 1985 assumed). Modern innovation theory emphasizes the rather open character of this learning process (Chesbrough, 2003, 2006; Von Hippel, 1976, 2005, 2007). The study of current innovation practices show that innovation processes require the ability and willingness of the relevant actors – like citizens - to cooperate and to link and share ideas, knowledge and experience beyond traditional organizational borders, as well as to exchange vital resources such as staff. It refers to the free and interactive exchanges of knowledge, information and experiences, in which new ideas and concepts are discussed in intra- and inter-organizational networks (Chesbrough, 2003, 2006; Von Hippel, 1976, 2005, 2007). Moreover, it requires the existence of an open culture and a safe context in which 'trial and error', 'reflection' and 'learning' can take place without one being penalized for making 'mistakes' or not realizing immediate results. Hence, it is important to have safe places for incubating and prototyping in order to learn (Albury, 2005). However, this open innovation process is an embedded process, which takes place in specific local and institutional context (Bekkers et al, 2011). This implies that it is important to recognize the specific environment in which innovation processes take place. This is why Castells (1996:3) mentions 'innovation milieus'. As a result the processes and outcomes of innovation are rather contingent (Walker, 2008). That is why it can be

argued that innovation processes should be studied from an ecological perspective (Bekkers & Homburg, 2007; Bason, 2010; Osborne & Brown, 2011).

2.2   Background on social innovation

Perhaps social innovation is even a more fuzzier concept than innovation. Looking at the literature which dominated by rather 'grey' innovation policy advisory reports and applied research memoranda (Mulgan, 2007; Goldenberg et al, 2009; Howalt & Schwarz, 2009) we can argue that social innovation refers to three elements. All these elements refer to the social aspect of an innovation but in different ways:

- Social innovation particularly stresses to produce <u>sustainable outcomes</u> that are relevant for society or specific groups in society. When looking at these outcomes it is not only important that they 'work' (in terms of efficiency and effectiveness) but that they are also appropriate in terms of really being able to address the specific needs, wishes and challenges with which society or specific groups in society are wrestling (in terms of appropriateness and responsiveness). Sustainable implies that social innovations tries to produce outcomes that have long lasting outcomes.

- Social innovation also stresses that the <u>innovation fundamentally changes relationships between stakeholders</u>. In doing so, a process of 'roundaboutness' (Majone,1998:97) or 'institutional conversion' (Thelen 2002:224) is being aimed for. The way in which stakeholders relate to each other, how they interact with each other, how they collaborate with each other is radically changed. Social innovation tries to act as a 'game changer', breaking through 'path dependencies'. Through social innovation, it is argued that the governance capacity of a society order to deal with new pressing demands and challenges is being enhanced, because the game is being changed (European Commission, 2011:33).

- Next to this, the social innovation concept emphasizes that these outcomes are not by definition related to science and technology driven innovations. It is important to look <u>beyond technological innovations</u> (Howalt & Schwarz, 2011:18). In doing so they contribute to a process of social change.

2.3   Co-creation in private sector innovation

The involvement of end-users in the design and development of goods and services is acknowledged in the private sector. The idea is that user-centered innovation processes may imply great advantages, compared to the manufacturer-centric innovation development. Instead of relying on manufacturers, users can have great influence to the direction and character of the innovation. Next to that individual users and manufacturers may benefit from the resources, shared by the other actors (Von Hippel, 2009).

This potency was recognized in the private sector by Prahalad & Ramaswamy (2000). To them co-creation is a more far-reaching concept than just setting up a dialogue. Customers are no longer prepared to accept prefabricated services and products by companies. Customers wish to create themselves (Prahalad & Ramaswamy, 2000; p. 81). They explain the far-reaching character of the

concept by comparing it to customization. Customization is, to their perspective, the attempt of the manufacturer to meet the customers' needs as best as possible. Customers can then customize the products to their preferences (for instance business cards). But when customer co-create, than the production becomes personalized. They are not just free to choose from a menu, designed by the producer, but are able to design, shape and specify the product by themselves. Companies must create the opportunities then, for customers to decide to what extent they would like to be involved and to experiment.

Co-creation does not stand on its own, but it can also be understood in relation to two simultaneous trends. Firstly, corporations were challenged to produce their goods more and more efficiently, thereby looking for opportunities to create efficiency gains outside the borders of the own organization (Prahalad & Ramaswamy, 2000; 2002). Secondly, due to the communication possibilities of the Internet, consumers have the possibility to engage themselves in dialogues with manufacturers and other consumers. An important aspect is that the consumers can learn about the business independent from the corporations. Therefore customers become not only an important source of information or a valuable asset in product development, they become also a source of competence. (Prahalad & Ramaswamy, 2000; 2002).

Vargo & Lusch (2004) approached the concept of co-creation slightly different. They focus on the role of the consumer as a 'co-creator' of value. In marketing, traditionally a 'goods centred view' prevailed: value is added to products in the production process and this value is articulated in the exchange of a good (consumer buys the product) (Vargo & Lusch, 2006). However, during the last years we see the emergence of 'a service-dominant' view, in which the consumer becomes a partner. Learning from customers and being adaptive to their individual and dynamic needs is the main purpose (2004, p. 6). Value is then defined by and co-created with the consumer which leads to two forms of participation. Either the customers (or other partners) are involved in the co-design of a new product and/or they are involved in the co-production of the good (Vargo & Lusch, 2006:5). In doing so customers are considered as being an endogenous part of the design and production process. As a result research has shown that the level of co-creation affects the customer satisfaction with the service company, customer loyalty and service expenditures (Grisseman & Stokburger-Sauer 2012: 1489). Chathota et al. (2012) has shown the competitive advantages for companies if they move toward a co-creative philosophy, while Barrutia and Echebarria (2012) emphasize benefits like reducing costs, knowledge and resources of working together with customers.

The idea of co-creation in social innovations in the public domain seems to be borrowed from the private sector innovation literature and practice. While at the same time the public sector has a specific history, starting in especially the 1990's, with involving citizens in policy making and service delivery processes. Hence, it is interesting to see if the theory and practice of co-creation in social innovations can benefit from the knowledge that is gained. In order to explore this knowledge base, we therefore conduct a systematic review on co-creation/co-production within the public domain.

3   Research Strategy: conducting a systematic review

3.1   Choosing for a systematic review

In order to analyze the literature on co-creation during innovation processes, a systematic review has been conducted. A systematic review compromises several explicit and reproducible steps, such as identifying all likely relevant publications, selecting eligible studies, assessing the quality of the studies, extracting data from eligible and high quality studies and synthesizing the results (Liberati et al., 2009). It differs from a more traditional overview (or narrative review) as it is a replicable and transparent process (Trenfield et al. 2003). When reporting this systematic review, we will adhere as much as possible to the widely used 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (The PRISMA Statement), which ensures transparent and complete reporting (Moher et al., 2009; Liberati et al., 2009).

3.2   Study and report eligibility

Before conducting the systematic review, eligibility criteria were specified. PRISMA distinguishes between study eligibility and report eligibility criteria (Liberati et al., 2009). Study eligibility criteria include for instance the type of participants (citizens, public managers, NGOs etc.) and the study design, such as a survey or a case study. Report eligibility criteria include among else the language in which the report is written, the date of publication, and which type of reports are being included (journal articles, dissertations, congress papers, etcetera). Each record was assessed based on these eligibility criteria.

Study eligibility criteria

- *Type of studies* – Studies should deal with co-creation/co-production of citizens during the design or implementation of public service delivery processes. The public sector was defined broadly as "those parts of the economy that are either in state ownership or under contract to the state, plus those parts that are regulated and/or subsidized in the public interest" (Flynn, 2007:2). More specifically, the study should minimally focus on either the drivers and barriers of co-creation (RQ1), the forms, objects and domains of co-creation (RQ2) or the outcomes of co-creation (RQ3).
- *Type of participants* – The participants in the co-creation process should minimally be citizens – or their representatives – and civil servants.
- *Study design* – Only empirical studies were eligible, as we are interested in the empirical evidence on co-creation during innovation. All types of designs are included (questionnaire, case study, experiment).

Report eligibility criteria

- *Language* – Only reports written in English were taken into account. For systematic reviews, it is common to only select studies written in English, given the practical difficulties of translation and the replicability of the review (Wilson et al., 2003).
- *Publication status* – We only included international peer-reviewed journal articles in our sample.

- *Year of publication* – Reports were retrieved which were published between 1988 and 2013. 1988 is chosen as this is the publication date of the seminal work of Von Hippel, on which much of the research on innovation builds. 2012 is chosen given that it is the final complete year before conducting the systematic review.

3.3   Search strategy

In order to locate studies, a number of strategies were used. First, studies in electronic databases were searched (1987-2013). This search was applied to Scopus. The last search was run on 21-03-2013. Topics that were used in searching the databases included [citizens], [social innovation], [co-creation], [co-production], [public sector] and [value-creation]. After searching for the studies, the studies were assessed based on eligibility. The studies were screened based on title and abstract and – when needed – by reading the full text.
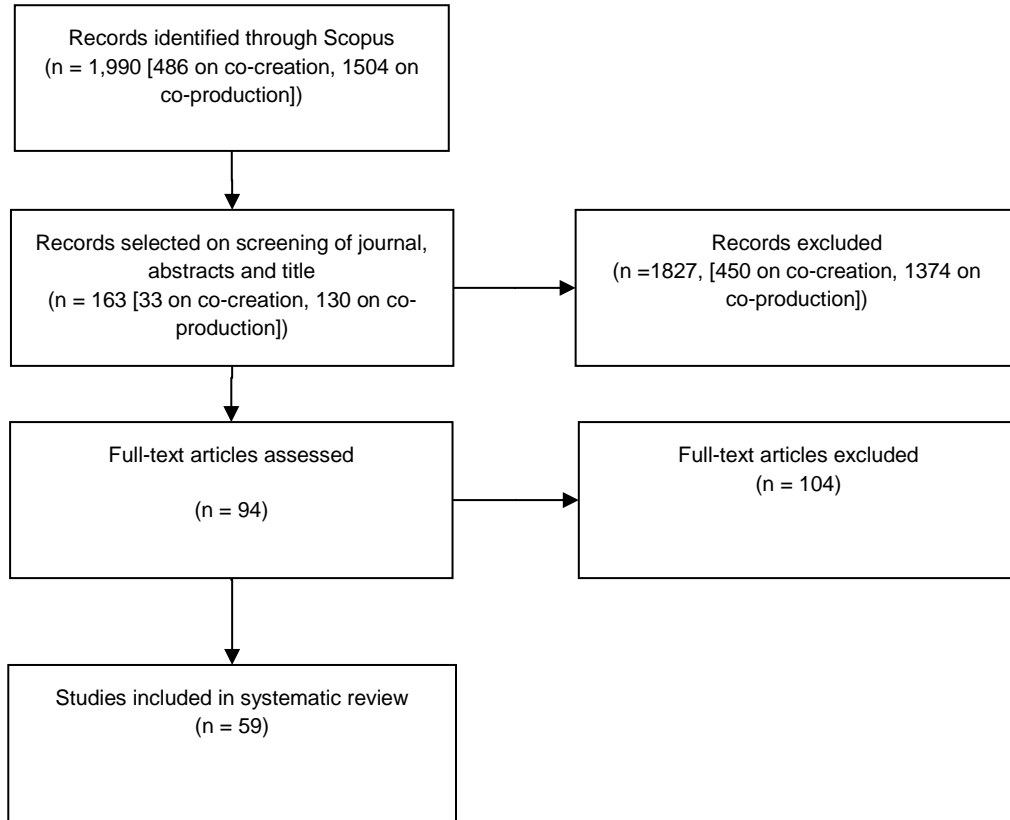
3.4   Study selection

We analyzed two bodies of knowledge: co-creation and co-production. In this article we are looking for relevant influential factors for co-creation in public sector innovation. However, we also analyzed the literature on co-production in the public sector. This in line of the argument of Lusch & Vargo (2004) who described co-creation and co-production as two sides of the same coin. Following that notion, some authors see the both concepts as interchangeable. Other articles define co-creation as such that there is no difference with co-production (see also section 4.2). Hence, the literature on co-production may learn us important lessons with regard to co-creation as well.

We used Scopus to identify the articles which matches our eligible criteria. Since one of our eligible criteria is *peer reviewed articles,* we need to avoid a mix-up with 'grey' literature. Therefore, Scopus is more suitable than for instance Google Scholar[5]. For co-creation our search resulted in 486 hits. For co-production this resulted in 1504 hits. Of these 1990 studies, 163 (33 on co-production, 130 on co-production) were selected for closer examination. The full text of these 163 was examined in more detail. 104 studies were discarded since close examination showed that they did not fit our eligible criteria. Ultimately fifteen studies on co-creation were included in the review on co-creation and 44 studies on co-production. This resulted in a review on 59 articles (15 on co-creation, 44 on co-production, see flow diagram).

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[5] Our intent is to expand our search to other databases as well, such as ISI web of science, later on.

Figure 1 Flow-diagram for the search strategy

Records identified through Scopus
(n = 1,990 [486 on co-creation, 1504 on
co-production])

↓

Records selected on screening of journal,
abstracts and title
(n = 163 [33 on co-creation, 130 on co-
production])

→

Records excluded
(n =1827, [450 on co-creation, 1374 on
co-production])

↓

Full-text articles assessed

(n = 94)

→

Full-text articles excluded
(n = 104)

↓

Studies included in systematic review
(n = 59)

4 Results of the review

4.1 Results: study characteristics

In presenting the results we will follow the three review questions that were formulated in the previous section. However, before we go into the results we will address a number of characteristics of the studies that we found.

Table 1 shows that the diversity in journals where empirical research on co-creation and co-production has been published. It can be concluded that that co-creation/co-production is a topic which is widely studied in various academic disciplines. However, since most journals are selected only once and since the journal which has published the most on co-creation/co-production, delivered only six results, we can state that the topic is not extensively studied in any policy domain/academic discipline.

Journal	n	Reference
International Journal of Voluntary and Nonprofit Organizations	6	Bovaird & Loeffler (2012); Brandsen & Helderman, (2012); Meijer (2012); Pestoff, (2012); Vamstad, (2012); Verschuere et al. (2012)
Environmental Science & Policy	4	Maielloa et al. (2013); Edelenbos et al. (2011); Lorraine Whitmarsh et al. (2009); Corburn, (2007)
Public Management Review	4	Groeneveld (2008); Brandsen,& Pestoff (2006); Pestoff (2006)
International Journal of Service Management	2	Diaz-Mendez & Gummesson (2012); Elg et al. (2012)
Managing Service Quality	2	Gebaurer, et al. (2010); Gill, et al.(2011)
Australian Journal of Public Administration	2	Ryan(2012); Alford (1998)
Annals of Public and Cooperative Economics	2	Pestoff (2009); Vaillancourt (2009)
Appetite	1	Cairns (2013)
European Management Journal	1	Briscoe et al. (2012)
International Journal of Electronic Government Research	1	Kokkinakos et al. (2012)
Asian Social Science	1	Bowden & D'Allessandro (2011)
VINE	1	Wise, et al.(2012)
Journal of Collaborative Computing	1	Baumer, et al. (2011)
European Journal of Information Systems	1	Feller, et al. (2010)
Journal of Marketing Management	1	Kerrigan & Graham (2010)
International Journal of Services Technology and Management	1	Fuglsang (2008)
Innovative Higher Education	1	McNall et al. (2008)
Ljetopis socijalnog rada	1	Mešl (2010)
Britisch Journal of Learning disabilities	1	Roberts, et al.(2012 [1])
Journal of Applied Research in Intellectual Disabilities	1	Roberts et al. (2012[2])
Criminology & Criminal Justice	1	Carr (2012)
British Journal of Social Work	1	Evans et al. (2012)
Qualitative Health Research	1	Gillard et al. (2012)
TQM Journal	1	Cassio & Magno (2011)
Social Studies of Science	1	Cornwell & Campbell (2011)
East Asia an International Quarterly	1	Foljanty-Jost, G. (2011)
Health & Place	1	Nimegeer et al. (2011)
World Hospitals and Health Services: the Official Journal of the International Hospital Federation	1	Sharma, et al. (2011)
International Journal of Environmental & Science Education	1	Pouliot (2009)
Local Government Studies	1	De Vries (2008)
Environment and Urbanization	1	Mitlin (2008)
Human Relations	1	Hyde & Davies (2004)
Social Science and Medicine	1	Li (2004)
Patient Education and Counseling	1	Trummer et al. (2006)
Journal of Leisure Research	1	Glover (2002)
Canadian Journal of Development Studies	1	Karim-Aly et al. (2003)

Journal	n	Reference
Journal of Policy Analysis and Management	1	O'Rourke & Macey (2003)
Journal of Community & Applied Social Psychology	1	Kingfisher (1998)
Police studies: International Review of Police Development	1	Reisig & Giacomazzi (1998)

Table 1 Diversity in journals on co-creation and co-production

Next to the journals, we also analyzed the research methods which the studies employed. Most authors conducted a single-case study (28), studying one organization or practice. Within this category a number of different research techniques are used, such as database analysis, documents analysis, interviews with relevant stakeholders or participation and observation research. Next to this, 20 studies employed a multiple case-study design. We found eight examples of studies which have a 'most- similar-case- study design' (e.g. Andrews & Brewera, 2013; De Vries, 2008; Li, 2004; O'Rourke and Macey, 2003). Seven studies were based on case comparison between different cases (most-different-cases design) (e.g. Karim-Aly, 2003; Pestoff, 2012; Bovaird & Loeffler, 2012; Edelenbos et al. 2011).

The (multiple) case study methods seems to be the most popular research method. We found only eight articles which a quantitative method (mostly surveys) (e.g. Maielloa et al., 2013; Varmstad, 2012; Cassio & Magno, 2011; De Vries, 2008; Glover, 2002; Reisig & Giacomazzi, 1998; Bowden & D'Allessandro, 2011; McNall et al., 2008). On the one hand this seems understandable given the importance that in the innovation literature is attached to study innovations in their specific local contexts. The case studies show that characteristics of the specific context play an important role in explaining the co-creation/co-production dynamics that takes place. On the other hand, the dominance of the case study method seems to limits the degree in which we can draw general conclusions regarding the influence of specific drivers and barriers as well as relevant outcomes. A possible danger of this dominant approach could be that all the explanations that are found are always 'contingent', and thus local ones, which prevents us to look for more general factors and more local factors that should be taken into consideration.

4.2 Objects, domains and forms of co-creation

Research question 1 focuses on the object of co-creation with citizens, its domains and its forms. However, before this is discussed, we must analyze the definitions co-creation and co-production used. As can be seen from Table 2 and 3, the authors vary in their definition of co-creation or co-production. Some authors did not present a specific definition of co-creation. First, in some studies the subject of co-creation with citizens, is not the main study object. Some authors present the topic of co-creation merely as an explaining factor to understand policy effectiveness (e.g. Cairns, 2013) and not how policy affects co-creation with citizens. Second, the absence of a definition is caused by the way the study is conducted. Most authors choose a theoretical perspective, related to Vargo & Lusch (2004) or Ostrom (1978) in order to examine co-creation/co-production. Furthermore, some studies tried to assess co-creation from a more practical perspective. Then a specific definition was not given.

Definition of co-creation	n	Reference
value creation with consumer at multiple points in the production process	6	Briscoe et al. (2012); Diaz-Mendez (2012); Bowden & D'Allessandro (2011); Kerrigan & Graham (2010); Wise et al. (2012); Fuglsang (2008)
Consumer as active agent	4	Cairns (2013); Gebauer et al. (2010); Gill et al. (2011); Mesi (2010)
Co-creation by shared resources	2	Elg et al. (2012); Feller et al. (2010)
No definition	2	Kokkinakos et al. (2012); McNall et al. (2008)
collaboration with other partners	1	Baumer et al. (2011)

Table 2 Diversity in definition on public co-creation

Definition of Co-production	Number of Articles	Reference
rearranging (sustainable) relations between government and citizens and distribution of power	9	Maielloa et al. (2013); Roberts et al. (2012 [1]); Roberts et al. (2012[2]); Ryan (2012); Varmstad (2012); Evans et al. (2012); De Vries (2008); Joshi & Moore (2004); Reisig & Giacomaazi (1998)
introducing users in the production of knowledge	6	Cornwell & Campbell (2011); Edelenbos et al. (2011); Poulliot (2009); Corburn (2007); Mitlin (2008); Karim-Aly et al. (2003)
partnership between institution and the community/users/patients	6	Glynos & Speed (2013); Meijer (2012); Carr (2012); Sharma et al. (2011); Li (2004); Alford (1998)
both the customer and the firm's contact employee interact and participate jointly in the production and delivery of a good or service	4	Leone et al. (2012); Pestoff (2012); Gillard et al. (2012); Groeneveld (2008)
active participation during the various stages of the production process	3	Cassio & Magno (2011); Vaillancourt (2009); Trummer et al. (2006)
joint responsibility of public professionals and citizens in public service delivery	2	De Witte & Greys (2013); O'Rourke & Macey (2003)
The public sector and citizens making better use of each other's assets and resources to achieve better outcomes or improved efficiency	2	Bovaird & Loeffler (2012); Pestoff (2006)
citizens produce their own services at least in part	1	Brandsen & Pestoff (2006
service users as co-producers of service oriented culture	1	Hyde & Davies (2004)
giving citizens the necessary authority to determine the course of actions	1	Glover (2002)
Co-production may be defined as the mutual evolution of social activities with knowledge and discourse	1	Forsyth (2001)
no definition	1	Andrews & Brewera (2013)

Table 3 Diversity in definition on public co-production

The definitions of co-creation and co-production show some similarity. First of all, in both bodies of literature the accents lies on the *active involvement of citizens* in public service delivery. For co-creation several authors aimed at the changing role of the consumer from a 'passive consumer to an 'active agent' (e.g. Cairns et al. 2013; Gebeauer et al. 2010). In the co-production literature we see some variation/specification of this new role of the consumer. Some authors aim at the 'active participation of consumers during the various stages of the production process' (e.g. Cassio & Magno 2011; Vaillancourt, 2009) and others define co-production as the 'partnership between institution and the community/users or patients' (e.g. Glynos & Speed, 2013; Sharma et al. 2011, Alford 1998) and the 'joint responsibility of public professionals and citizens in public service delivery' (e.g. De Witte & Greys 2013; O'Rourke & Macey, 2013). Second, in the co-creation literature, we found two contributions which stressed the *'sharing of resources'* as defining element for co-creation with citizens (Elg et al. 2012; Feller et al. 2010). On co-production (Bovaird & Loeffler 2012; Pestoff, 2006), two studies used the same

definition. Furthermore, the sharing of resources was primarily found in relation to co-production of *knowledge* (e.g. Cornwell & Campbell 2011; Mitlin, 2008; Corburn, 2007). In knowledge co-production the assumption is that 'lay-men' possess valuable knowledge which can contribute to the quality of public services. Therefore public institutions should use this resource.

However, we can also identify some important differences between the two bodies of knowledge. In the literature on co-creation almost half of the contributions co-creation is defined as *value* co-creation. The notion of value is absent in the co-production literature. In the co-production literature we see that the emphasis is primarily put on the rearrangement of the relationships between government and citizens, that become more horizontal in terms of a partnership that is being created. This also leads to distribution of responsibilities. At the same time it could be argued that this rearrangement is the results of an active involvement of citizens.

We can conclude that, to a large extent, authors within the both bodies of knowledge consider the concepts of co-creation and co-production as interchangeable or at least subsequent to each other. We can therefore now – at times – analyze them simultaneously.

We can now analyze the domains in which co-creation takes place. In Table 1 it was shown that the research on co-creation and co-production in the public sector seems to be rather widespread. This conclusion is strengthened when we analyze the sectors where the studies have been conducted, shown in Table 4. It seems that co-creation and co-production are studied in many different policy domains. In some articles, the authors examined multiple policy sectors in their analysis. Therefore the total number of studied policy sectors in slightly higher than the number of studies. Peculiar is a relatively larger number of studies within health care and education. This could be related to the fact that health care contains a variety of sub-sectors in itself, such as elderly care, youth care, palliative care and psychosocial care. The same goes for education. Some studies were dedicated to pre-education, others on elementary education and some on higher education. Furthermore, in a number of studies were dedicated to a level of administration (central government or municipality) and not to a specific type of services. Hence, the conclusion is that co-creation and co-production is a practice that can be found in numerous policy sectors, although the dominance of health care and education shows that it is particularly popular in 'soft' policy sectors. This may be explained by the more direct relation between citizens and public officials than for instance in water management.

Policy Sector	N
Public Health	22
Education	10
Environmental Policy	6
Public Safety	4
Municipal Service	4
Central Governmental Services	3
Media, Public Transport, Rural Policy, Housing, Unemployement Support, Multiple sectors	All 2 (8 times)
Participatory Budgetting, Public Library, Water Management, Sport Facilities, Research, Postal Services	All 1 (6 times)
Total	67

Table 4 Diversity of policy sectors

The following table presents the different <u>forms</u> of co-creation/co-production that came across during our systematic review. We distinguished three different levels of participation: Level 1 involves the citizen just as an co-implementer of the public service which as such has already been defined by government, level 2 approaches the citizen as co-designer of how the product or service should be delivered and level 3 represents the citizen as initiator and the government as supporting (or frustrating) actor. In analyzing these different levels of participation we make a distinction between co-creation and co-production. We expected that in the co-creation literature the emphasis would be put on the citizen as co-designer, while in the co-production the literature the emphasis might be put on the role of the citizen as co-implementer (or co-producer).

Level	n	Reference
1. Citizen as a co-implementer	7	Briscoe et al. (2012); Diaz-Medez (2012); Elg et al. (2012); Bowden & D'Allessandro (2011); Feller et al. (2012); Gebauer et al. (2010); McNall et al. (2008)
2. Citizen as a co-designer	5	Wise et al. (2012); Feller et al. (2012); Gebauer et al. (2010); Fuglsang (2008); Mesi (2010)
3. Citizen as an initiatior	3	Cairns (2013); Baurner et al. (2011); Kerrigan & Graham (2010)
No specific level	1	Gill et al. (2011)

Table 5 Form of co-creation

Level	n	Reference
1. Citizen as a co-implementer	28	Andrews & Brewera (2013); DeWitte & Geys (2013); Glynos & Speed (2013); Maielloa et al. (2012); Bovaird & Loeffler (2012); Meijer (2012); Pestoff (2012); Ryan (2012); Carr (2012); Evans et al. (2012); Gillard et al. (2012); Cornwell & Campbell (2011); Edelenbos et al. (2011); Folyante-Jost (2011); Groeneveld (2008); Pestoff (2009); whitmarsh et al. (2009); Brandsen & Pestoff (2009); Corburn (2007); De Vries (2008); Mitlin (2008); Pestoff (2006); Joshi & Moore (2004); Li (2004); Trummer et al. (2006); Karim-Aly (2003); Alford (1998); Forsyth (2001); Kingfisher (1998); Reisig & Giacomazzi (1998)
2. Citizen as a co-designer	16	Leone et al. (2012); Roberts et al. (2012[1]); Roberts et al. (2012[2]); Bovaird & Loeffler (2012); Pestoff (2012); Ryan (2012); Varmstad (2012); Carr (2012); Folyante-Jost (2011); Nimegeer et al. (2011); Sharma et al. (2011); Pestoff (2009); Mitlin (2008); Corburn (2007); Pestoff (2006); Hyde & Davies (2004); Trummer et al. (2006)
3. Citizen as an initiatior	1	Brandsen & Helderman (2012)
No specific level	5	Cassio & Magno (2011); Pouliot (2009); Vaillancourt (2009); Glover (2002)

Table 6 Form of co-production

One might notice that some authors are mentioned more than once. This is because those authors examined different types of co-creation or co-production. Studies mentioned in the row of 'no specific level' conducted either a study of the perceptions of citizens (e.g. Cassio & Magno; Pouliot, 2009; Glover; 2002) or public officials (e.g. Gill et al., 2011).

Our separation in the two bodies of knowledge seems interesting as it shows that in both bodies of literature most practices refer to citizens as co-implementers, although in the co-creation literature co-design seems to be more dominant than in the co-production literature. However, perhaps the most important conclusion that could be drawn from these tables is, that the distinction between co-production and co-creation does not so much depend on the type of citizen involvement. Co-implementation and co-design are participation levels that occur in both bodies of literature, while the most dominant one in both bodies is the one in which the citizen is predominantly seen as co-implementing.

Both co-creation as co-production appear to be broad concepts, which are closely related to each other.

The following table shows schematically the objectives/reasons for conducting co-creation or co-production. 18 Publications described objectives that need to be achieved with co-creation/co-production.

Study	Objectives/reasons for Co-creation/Co-Production
1. Elg et al. (2012)	- Positive impact on patients' adherence to treatment, - Which in turn yields better clinical outcomes and lower costs
2. Kerrigan & Graham (2010)	- Multiple participation possibilities for citizens in the co-creation of news needs to be channeled
3. Mesi (2010)	- In order for the participants in the problem to become the participants in the solution
4. Leone et al. (2012)	- A patient-centered health regimen to improve patient outcomes
5. Evans et al. (2012)	- Significant cuts in public spending - An urgent need to address the issue of climate change - Increased demand for care and support services for older people.
6. Cassio & Magno (2011)	- The hypothesis is that resistance to citizen involvement can be explained by the differences between public administrators and elected officials.
7. Edelenbos et al. (2011)	- Co-producing policy relevant knowledge for the purposes of evaluation and decision-making between bureaucrats, experts and stakeholders.
8. Corburn (2007)	- Make research more democratic - Ensure the poor and people of color are not excluded from decisions that impact their lives - incorporate local knowledge and lived experience into research and action
9. Briscoe et al. (2012)	- Involvement of the community in the production of the service is a more effective and efficient instrument of value co-creation
10. Bowden & D'Allessandro (2011)	- Competition intensifies, therefore satisfaction experiences become more important.
11. Wise et al (2012)	- Citizens and contributors can better release the potential of the public and their agents to create more engaging, sustainable and rewarding futures
12. Fuglsang (2008)	- Co-creation could increase the role of the Municipality in healthcare and reduce the costs of hospitalization
13. Glynos & Speed (2013)	- Time banking practices can be understood as helpful devices in an era of public sector spending cuts, since it is reasonable to assume that third-sector initiatives will assume greater importance – a trend clearly evident in David Cameron's appeal to a 'Big Society' vision
14. Maielloa et al. (2013)	- The complex nature of public made it necessary for citizens, experts and local governments to collaborate.
15. Meijer (2012)	- To strengthen the subjective safety, citizen's perception of safety in their own environment. - To strengthen objective safety. Tracking suspected or missing people faster will enhance the effectiveness of intervening police work. - To strengthen trust in government and the police. If citizens are engaged in police work, they can be expected to develop a more positive perception of the police.
16. Whitmarsh et al. (2009)	- Co-production can improve the quality of decision-making by drawing on diverse knowledge; allow explicit representation of diverse social values and personal preferences in decisions about what future we 'should' and 'would like to' have - and potentially – through the process itself – foster trust, ownership and learning amongst participants
17. Joshi & Moore (2004)	- Otherwise it is difficult to deliver the service effectively.
18. Alford (1998)	- In some types of public sector activity, value cannot be created or delivered unless the client actively contributes to its production
Other publications (34)	No reasons mentioned

Table 7 Objectives of co-creation/co-production

The table shows various authors who have identified why co-creating/co-producing with citizens is worthwhile. An important consideration appeared to be budget shrinking and the wish to provide services more efficiently (e.g. Elg et al. 2012; Evans et al. 2012; Glynos & Speed, 2013; Fuglsang, 2008). Others explain the rise of popularity for co-creation as a consequence of a horizontal relation between public institutions and service users. As a result public institutions should take customer satisfaction and the quality of public service more seriously (e.g. Briscoe et al. 2012; Bowden & D'Allessandro, 2011; Leone et al. 2012). However, the objective of co-creation/co-production that emerged most frequently is the conviction that without active participation of citizens it is not possible to provide adequately public services (e.g. Wise et al. 2012; Joshi & Moore, 2004; Alford, 1998). However, most contributions did not mention the objectives for co-creation and co-production. This review shows that there seems to be an implicit conviction that involvement of citizens seems to be a virtue in itself, like democracy or transparency. Citizen involvement is a virtue because it contributes to a more effective public service delivery, or that citizen involvement leads to a shared responsibility. Citizen involvement is considered, in a normative way, as something that is appropriate. Co-creation/co-production seems to be regarded as a goal in itself.

4.3   Influential factors

We can now analyse the factors that influence the way in which citizens are able and willing to participate in co-production and co-creation process, shown in Table 8. First, we have identified which factors the author mentioned as influential. Sometimes these factors are framed by the other as a supporting or as frustrating factor. We consider the supporting or frustrating nature of these factors as 'two sides of the same coin'. For instance a number of studies mentioned the inclusion or acceptance of the citizen/patient as key driver for successful establishing co-production relations (e.g. Leone et al. 2011; Ryan, 2012; Corburn, 2007). On the other hand also a number of authors identified an averse attitude towards citizen participation (e.g. Boviard & Loeffler, 2012; Varmstad 2012; Kingfisher, 1998). Both factors report about how citizens are regarded by public officials. Therefore we presented these factors together. Second, we coded these factors into fifteen different categories.

Influential factor	n	Reference
Compatibility of organizations to citizen participation	20	Feller et al. (2012); Gebauer et al. (2010) ; Fuglsang (2008); McNail et al. (2008); Andrews et al. (2013); Vaillancourt (2009); Joshi & Moore (2004); Reisig, M.D. & Giacomazzi, A.L. (1998); Bovaird & Loeffler (2012); Brandsen & Helderman (2012); Corburn (2007); Edelenbos et al. (2011); Wise et al. (2011); Elg et al. (2012); Fuglsang (2008); Mesi (2010); Leone et al. (2013); Maielloa et al. (2013); Bovaird & Loeffler (2012); Cornwell & Campbell (2011) ; Sharma et al. (2011)
Open attitude of organization towards citizen participation/acceptance of citizens as partners	17	Feller et al. (2012); Gebauer et al. (2010); Gill et al. (2011); Fuglsang (2008); Leone et al. (2013); Roberts et al (2012[2]); Ryan (2012); Cassio & Magno (2011); Cornwell & Campbell (2011); Nimegeer(2011); Whitmarsh et al. (2009); Corburn (2007); Roberts et al. (2012 [1]); Roberts et al. (2012[2]); Karym-Aly (2002); Li (2004); Trumera et al. (2006)
Administrative culture (fear of change, risk aversion)	12	Maielloa et al. (2013); Roberts et al. (2012[2]); De Vries (2008); Mitlin (2008); Bovaird & Loeffler (2012); Brandsen & Helderman (2012); Varmstad (2012); Karym-Aly et al. (2002); Kingfisher (1998); Brandsen & Helderman (2012); Sharma et al. (2011); Hyde & Davies (2004)
Clear incentives for co-creation (win/win situation)	9	Wise et al. (2012); Feller et al. (2010); Fuglsang (2008); Roberts et al. (2012[2]); Bovaird & Loeffler (2012); Pouilliot (2009); Brandsen & Helderman (2012); Karym-Aly et al. (2002); Alford (2008)
Intrinsic value s of participants (loyalty, civic duty, wish to improve the government)	4	Bowden et al. (2011); Wise et al. (2012); Roberts et al. (2012[2]); Sharma et al. (2011)
Presence of social capital within the target group	4	Andrews et al. (2013); Brandsen & Helderman (2012); Carr (2012); Foljanty-Jost, G. (2011)
Level of information sharing	4	Leone et al. (2013); Evans et al. (2012); Brandsen & Helderman (2012); Meijer (2012)
Supporting policy for co-creation/co-production	3	Cairns (2013); Carr (2012); Pestoff (2009)
Financial support	2	Brandsen & Helderman (2012); Pestoff (2006)
Presence and activities of an entrepreneur	2	Briscoe et al.(2012); Fuglsang (2008)
Customer awareness for co-creating possibilities	2	Gebauer et al. (2010); Pestoff (2012)
Involving stake-holders on different moments of the production chain	2	Glynos & Speed (2013); Edelenbos et al. (2011)
Protection of voice of patients/citizens	1	Elg et al. (2012)
Government as supporting actor (instead of initiating actor)	1	Wise et al. (2012)
Discretionary power of professionals	1	Gill et al. (2010)

Table 8 Identified influential factors

A large number of authors identified the attitude towards citizens as relevant partners as an important condition for co-creation/co-production. The importance of the willingness to incorporate citizens as full

partners is stressed both positive as negative. For instance Ryan (2012) stresses that the key pre-condition to the co-production of public safety, was prior acceptance of the legitimate right of the client to be a partner in the process. Formulated as a frustrating factor, Roberts et al. (2012 [2]) mention that many politicians, managers and professionals see co-production as highly risky. The behavior of citizens is less understood and considered unpredictable. Therefore political and professional reluctance to lose status and control makes that the willingness inside public service organizations to comprehensively embrace co-production is lacking. This condition is recognized by various authors, who conducted their research in different ways and within different policy domains. To mention a few, Gebauer et al. (2010) draw this conclusion after a case-study within the Swiss Federal Railway system. Leone et al. (2013) examined the relation between nurses and heart failure patients and Casio & Magno (2011) mention the same after their survey within Italian municipalities.

This observation can also be made with regards to two other factors: 'Compatibility of organizations to citizen participation' and 'administrative culture'. To start with the latter, for example, Varmstad (2012) asserts the problems with implementing co-production in preschool services by the lack of tradition on co-production within the pre-education sector. In their contribution they described a conservative administrative culture which is generally risk-averse. This issue of the administrative culture is addressed in a number of contributions (e.g. Bovaird & Loeffler, 2012; Brandsen & Helderman, 2012; Hyde & Davies, 2004). These articles show us that also the factor of a conservative and risk averse administrative culture is not restricted to a specific policy domain. Bovaird & Loeffler (2012) made this conclusion as well after conducting a comparative analysis between different policy domains, such as Adult Social Care, Rural Community Trust and the Firework Display. Brandsen & Helderman (2012) draw their conclusion after an analysis of the Dutch Housing sector and Edelenbos et al. (2011) came to the same statement after a study within the Dutch Water Management Sector. This means that whether the citizen is regarded as 'citizen', 'co-producer of knowledge', 'patient' or 'student', various authors claimed that in all policy domains the administrative culture is not aimed at involving citizens as full partners. As a consequence, many authors pointed at the problem that public organizations do not possess the proper compatibility within their organizational structure to incorporate citizens (e.g. Bovaird & Loeffler, 2012; Andrews et al. 2013; Joshi & Moore, 2004). This may result in the absence of training possibilities for employees (e.g. Leone et al. 2013; Sharma et al. 2011) and the lack of supporting processes, methods and tools (information system, ICT-possibilities) to enable citizens to co-create (e.g. Andrews et al. 2013; Elg et al. 2012).

Important is to emphasize the coherence we can detect between the different influential factors (figure 3). Within a risk-averse administrative culture, it seems plausible that the attitudes of public officials is averse to citizen participation. Hence public organizations lack the communication infrastructure which is required for active citizen involvement (e.g. Evans et al. 2012; Brandsen & Helderman, 2012; Meijer, 2012) and are not equipped with the proper instruments and training facilities to incorporate citizen participation. The outcome of this sequence is that if co-creation processes are not started within the organization, additional conditions are required in order to establish co-creation relationships with citizens. In our literature review, a few of these conditions came across: policy which supports co-creation/co-production (e.g. Carr, 2012; Pestoff, 2009), the presence and activities of an

entreprenleur (Briscoe et al. 2012; Fuglsang, 2008) and financial support (Brandsen & Helderman, 2012; Pestoff, 2006).

The mentioned factors above can all be related to the organizational and institutional 'side' of co-creation. Here, we can recognize the earlier mentioned virtue of citizen participation *sui generis*. Not only does it seems to be a virtue in itself, but also the responsibility to realize this virtue is defined as responsibility of the involved public organizations. However, some authors tried to identify the conditions on the 'side' of the citizen. Bowden et al. (2011) showed how social values strongly and positively determined students' perceptions of loyalty to the institution. More specifically, Wise et al. (2011) showed that intrinsic values such as loyalty, civic duty and the wish to improve the government affects positively the willingness of citizens to participate. However the factors on the citizen side are, generally, formulated differently, than those on the organizational side. Where the influential factors on the organizational side are mostly described as 'something that the organization must do' are the factors on the citizen side formulated as 'something you have or don't have'. For instance Brandsen & Helderman (2012) concluded that a strong limitation to co-production was the limited reach of 'community spirit'. Another interesting observation is that the studies that address the organizational and institutional side of co-creation and co-production are in general based on a qualitative comparative case study method, while most studies that address the citizen side, are based on a quantitative, survey based method, thereby asking citizens if and how they would like to participate (e.g. Wise et al. 2011; Glover, 2002).

We conclude that there are a number of influential factors to successful co-creation/co-production. Most can be identified on the organization side of co-creation. These factors, although presented here in distinct categories cannot be considered as independent categories but are related to each other. We present this interplay in Figure 2. The influential factors on the citizen side could be seen as conditions which are present or not.
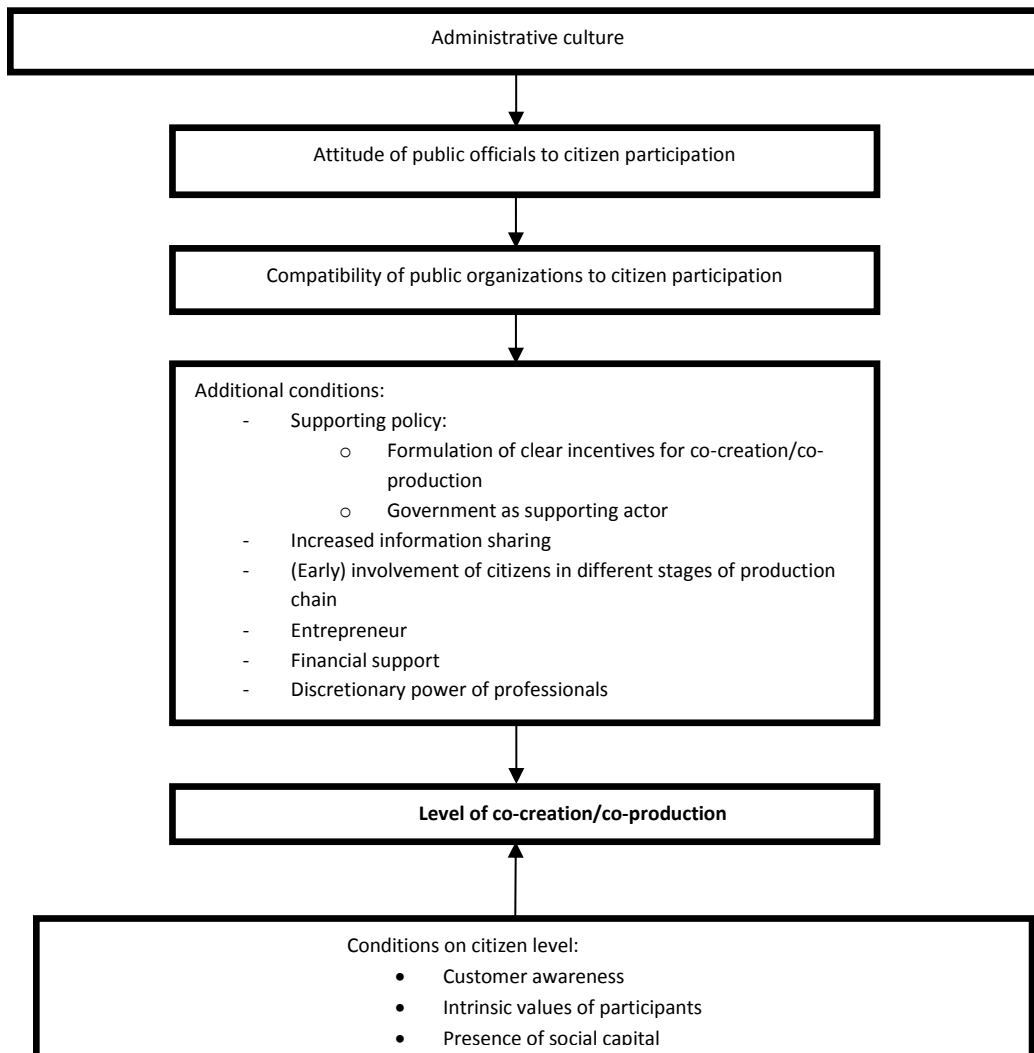
Figure 2 Interplay between influential factors

4.4 Outcomes

Research question 3 focused on the outcomes of co-creation/co-production. This is a somewhat difficult task, as only a few authors have related these outcomes to the original goals that co-creation/co-production had to accomplish. This task is even more difficult because in many studies these goals have never been stated. Therefore our ability to estimate to what extent the objectives of co-creation/co-production are achieved is limited.

We present subsequently in the first table (table 9) the results which are identified by the author and which are related to the purpose of co-creation/co-production. The next table 10 shows the outcomes formulated by authors who do not link the reported outcome to specific policy goals but to more general considerations that legitimize co-creation and co-production. The last table 11 summarizes only outcomes that have been reported without having specific goals or considerations in mind.

Study/policy sector	Goals Co-creation/Co-Production	Outcomes related to Object
Elg et al. (2012) Health Care Sector	- Positive impact on patients' adherence to treatment, - Which in turn yields better clinical outcomes and lower costs	- Supporting processes, methods and tools to enable patient co-creation and learning are often missing. - The voice of the patient needs to be protected.
Diaz-Mendez & Gummesson (2012) European Higher Education	- Universities must consider the new developments in service theory in order to enable effectively the Bologna goals	- The interactive and co-creation aspects are disregarded within the Spanish University. However the satisfaction surveys are not a reliable instrument to assess lecturer performance
Kerrigan & Graham (2010) Regional Media	- Multiple participation possibilities for citizens in the co-creation of news needs to be channeled	- The way this is conducted is by limiting customer involvement into 'debating current events'. Other contributions are not considered
Mesi (2010) Psychosocial support	- In order for the participants in the problem to become the participants in the solution	- The analysis showed that their use of the working relationship is neither consistent nor explicit.
Leone et al. (2012) Heart failure health care	- A patient-centered health regimen to improve patient outcomes	- Few nurses deviated from the standard script and none involved patients in designing personalized discharge plans.
Evans et al. (2012) Adult social care	Adult Social Care in England faces three major challenges: - Significant cuts in public spending - An urgent need to address the issue of climate change - Increased demand for care and support services for older people.	- social care can only be sustainable if an integrated approach is taken that combines environmental, economic and social considerations. The current fiscal crisis has added urgency to the need to develop innovative systems of social care based on co-production, mutualism and localism. Piloting and mainstreaming approaches such as these can only be done with strong leadership, long-term thinking and meaningful incentives
Cassio & Magno (2011) Italian municipalities	- Citizens are seen as active participants to public service planning and provisions. However a debate is going on of the advantages and disadvantages of citizen involvement.	- There appeared to be a statistically significant difference between public administrators' and elected officials' attitudes towards citizen involvement. - Differences exist in three main issues: the relative importance of citizens as sources of inputs to improve public service quality, the objectives of citizens' involvement and the structure of citizens' preferences.
Edelenbos et al. (2011) Dutch water management	- Co-producing policy relevant knowledge for the purposes of evaluation and decision-making between bureaucrats, experts and stakeholders.	- Knowledge co-production among experts and stakeholders was problematic both cases.

Corburn (2007)	- Make research more democratic	- Community knowledge does not replace professional science nor devalue scientific knowledge itself, but rather can "re-value forms of knowledge that professional science has excluded"
Environmental protection in Latino neighborhood in New York	- Ensure the poor and people of color are not excluded from decisions that impact their lives - incorporate local knowledge and lived experience into research and action	
Fuglsang (2008) Health care	- Co-creation could increase the role of the Municipality in healthcare and reduce the costs of hospitalization	- Certain actions had to be taken in order for the public sector to benefit from external ideas and open innovation. These were: getting involved, identifying demand, exploring incentives for co-creation and encouraging entrepreneurship. These actions may be summarised under the heading 'strategic reflexivity'
Alford (1998) Various	- In some types of public sector activity, value cannot be created or delivered unless the client actively contributes to its production	- Customer contributing by delivering information (putting in their postcodes for postal services) - Labour market programs could not achieve one of their objectives (heightening the attractiveness of jobseekers to employers) unless their clients also put in some time and effort, not just in taking part in these labor market programs but in actively engaging them in a committed fashion - The output which the Commonwealth Employment Service (CES)provides to the client, in the form of a job referral, cannot be transformed into a valuable outcome until the job-seeker actually secures the job, by making a positive impression on the employer at the interview on the job

Table 9 Outcomes related to original goals to be achieved

We can see that co-creation/co-production is regarded as a promising concept which needs to provide an answer to a number of challenges within the public domain. These answers are formulated in the specific goals. However, if we look at the reported outcomes in relation to the goals of co-creation and co-production that were mentioned by the authors, we see that it is quite difficult to link the specific outcomes to the specific goals. We observe that the reported outcomes are very often formulated in terms of a specific barrier that prevented that the original goals were achieved or in terms of a condition that have to be met in order to accomplish goals that were formulated. Very often these barriers and conditions relate to the earlier mentioned influence of the dominant administrative culture and the incompatibility of existing procedures, routines, systems and other practices. Moreover, looking at the reported outcomes we see, that in most of cases, the original goals have not been met. Explicit positive outcomes that are reported are increased customer satisfaction (Leone et al, 2012) and the insertion of other, more local knowledge (Coburn, 2007). The fact that most outcomes are reported in terms of barriers and conditions could also be dependent on the fact that in these studies a case study perspective prevails.

However, we also see that other outcomes have been formulated that, although not linked to specific co-creation/co-production goals, are linked to a number of more general considerations that have been put forward to legitimize co-creation/co-production. In table 11 we show if the outcomes that are reported match with these more general considerations.

Study	General considerations co-creation/co-production	Outcomes
Briscoe et al. (2012) Public safety	- Involvement of the community in the production of the service is a more effective and efficient instrument of value co-creation	- Challenge for co-production comes less from the world itself and more from the modifier, which indicates collaboration. - Collaboration leading to more effective value co-creation is also critical when considering the management of complex service system
Bowden & D'Allessandro (2011) Higher education	- Competition intensifies, therefore satisfaction experiences become more important.	- Social value is not positively related to satisfaction and loyalty to an institution, - Social value strongly determine students perception of loyalty to the institution
Wise et al (2012) Various	- Citizens and contributors can better release the potential of the public and their agents to create more engaging, sustainable and rewarding futures	- This study shows that, there is a clear need for an expansion of the genome framework to understand the incentives for public sector initiatives. In this study we expanded the genome's framework by adding: interest, civic duty, evaluate, feedback-public, feedback-not public. As a result citizen participation often rely more on intrinsic genomes than on economic genomes.
Glynos & Speed (2013) Various	- Time banking practices can be understood as helpful devices in an era of public sector spending cuts, since it is reasonable to assume that third-sector initiatives will assume greater importance – a trend clearly evident in David Cameron's appeal to a 'Big Society' vision	- Co-production in regimes of choice and recognition should be seen to be not just about co-producing things, and decisions about things, but also about co-producing identities. A regime of choice presents co-production as a function of pre-definition, while a regime of recognition presents co-production in terms of a constitutive and potentially transformative re-signification.
Maielloa et al. (2013) Environmental knowledge	- The complex nature of public policy made it necessary for citizens, experts and local governments to collaborate.	- Environmental Offices (EO's) do not play the role of knowledge co-production catalysts, since when making environmental decisions they only use technical knowledge. Italian EOs correspond to those who consider the integration of knowledge for decision making as being complicated, and think that participation is not very relevant, or relevant but not fundamental for both learning and consensus building. On the opposite side are the Brazilian EOs, who think that knowledge integration is fundamental for better environmental decision-making, and who consider participation necessary for consensus building as well as for learning

Meijer (2012)	-	To strengthen objective safety. Tracking suspected or missing people faster will enhance the effectiveness of intervening police work.	-	Co-production provide value to governments and citizens but they differ in their value for strengthening citizen communities. Individualized and community co-production are identified as different outcomes of socio-technological trajectories.
Public safety	-	To strengthen trust in government and the police. If citizens are engaged in police work, they can be expected to develop a more positive perception of the police.	-	The second value of the forum could be that the forum enables citizens to exchange experiences with companions. The qualitative analysis shows that many of the postings contain stories about negative experiences of citizens when applying for a job.
Whitmarsh et al. (2009) Transport and emission	-	Co-production can improve the quality of decision-making by drawing on diverse knowledge; allow explicit representation of diverse social values and personal preferences in decisions about what future we 'should' and 'would like to' have	-	The greater focus of citizens on cultural, political and institutional barriers, rather than technological obstacles, is consistent with the participants' visions of ideal transport, which focused on lifestyle changes.
	-	Potentially – through the process itself – foster trust, ownership and learning amongst participants	-	Many citizens implicitly placed responsibility for the environment with government and do not see it as their responsibility
Joshi & Moore (2004) Water irrigation	-	Otherwise it is difficult to deliver the service effectively.	-	In a normative sense, many co-production arrangements rank second best, or even lower. In particular, they raise many concerns about accountability. However, such arrangements do appear to be widespread in parts of the South, and may constitute the best available alternatives, especially in environments where public authority is unusually weak.

Table 10 Outcomes not related to co-creation objectives but to general considerations that were used

If we look at the reported outcomes in relation to some general considerations that were put forward in the articles to legitimize co-production/co-creation, the same conclusion can be drawn as based on the previous table. In general we see that the authors do not address the question, if the reported outcomes supported the general considerations that are used to promote co-creation and co-production. The outcomes that are reported refer predominantly to barriers and conditions that have frustrated the co-creation/co-production efforts.

Both tables show a specific trend, but is this trend also visible in the last table that deals with the reported outcomes (table 13). In the following table are the outcomes presented from the contributions which did not mention a specific purpose at al.

Study/policy sector		Outcomes
Cairns, G. (2013) Food marketing	-	Restraining policy on unhealthy food does not affect the level of co-creation in mutual relations within the society
Baumer et al. (2011)	-	Part of the feeling to political participation is related to 'being part of the blog'.

Political blogs	-	These processes act as important differentiators between social media and more traditional media
Feller et al. (2010) Norwegian muninicipalities	-	The external partners strengthen the municipality's competence base and innovation processes with the inflow of expertise, competence, experiences, and components.
	-	In the projects studied there was evidence of a 'win-win' situation, where the external partners also strengthened their competence base.
	-	Through aggregation and syndication, value is created for citizens by leveraging the synergies between these various specialized organizations and acting as a single labor and educational market.
	-	As members of a network, smaller municipalities within the network are able to compete with larger ones in other regions for growth and sustainability, and the region as a whole is able to attract state funding and other prerequisites for the delivery of high quality services.
	-	With co-creation, the emphasis on involving the consumer of the service in its design resulted in the need for enhanced communication and interaction; thus strengthening and deepening the customer relationship.
Gebauer et al. (2010) Swiss Federal Railway	-	Locus of value creation within SBB moved from value facilitation to value co-creation
	-	The link between open dialogue on risk reduction and customer engagement was most evident in the initiative of SBB in establishing a night-time service network
	-	Self service SBB had increased the availability of self-service applications in a variety of situation
	-	SBB improved customer experience with regard to safety and access by installing an improved lighting system
Gill et al. (2011) Elderly community care	-	A service oriented organization creates a culture that supports and rewards service related behaviors, with committed employees working and building relationships
	-	It is through the direct service provider's service orientation that the organization's client orientation objectives are affected.
McNall et al. (2008) University-community partnerships	-	The co-creation of knowledge was associated with improved service outcomes for clients
	-	The more members of a partnership shared access to data and findings and shared in the interpretation, presentation, and publication of results, the better they perceived the service outcomes of clients to be.
Andrews & Brewera (2013) US state government	-	Social capital makes a positive and statistically significant contribution to the quality of public services
	-	The combined effect of social capital and management capacity leads to a statistically significant rise in performance when the two base terms are held constant
De Witte & Geys (2013) Public libraries in Belgium	-	Ignoring citizens' co-productive decisions leads to biased estimates of service providers' productive efficiency.
	-	it implies that high (or low) service-delivery-efficiency relative to service-potential-efficiency is driven to a significant extent by high (or low) demand for the services
Pestoff (2012) Preschool services	-	We found different levels of parent participation in different countries and in different forms of provision, i.e., public, private for-profit and third sector preschool services.
	-	The highest levels of parent participation were found in third sector providers, like parent associations in France, parent initiatives in Germany, and parent cooperatives in Sweden (ibid.).
	-	We also noted different kinds of parent participation, i.e., economic, political, social, and service specific.
Ryan (2012) Social support	-	Examples of co-production often seem to emerge when practitioners involved in implementation and delivery are confronted by a puzzle
	-	Subsequent experiments and trials can be seen as examples of 'learning'; that is, new

	ways of working created out of critical reflection regarding the present, rethinking the strategies and enacting anew and adapting existing practice
Varmstad (2012) Preschool services in Sweden	- co-production at parent cooperative preschools led to a more developed two-way communication between staff and parents - Perceived improvement for workers
Carr (2012) Public safety in American cities	Citizen participation in four roles: - Citizen partner, one who takes an active role in negotiating order and contributes to the stability and maintenance of their community. - Citizen associate, who plays a more scaled down and de-limited role in negotiating order than the partner. The associate is consulted about neighborhood crime and safety concerns, but has no real means of making inputs into the ongoing process of producing law and order. - Citizen bystander, who does not take any role beyond being a passive observer of law enforcement professionals, and presumably supporting what is being done in their name - Opponent, a citizen who is completely alienated from police and conventional law and order
Gillard et al. (2012) Health research	- We found that service user participants who felt supported clinically made decisions either to take medication as prescribed or to come off medication as an important aspect of their self-care (compared to other participants who were still struggling with whether to take medication or not) - Complex and subtle findings emerged about relationships between the service user and clinician, medication, choice, and self-care
Cornwell & Campbell (2011) Wild life protection	- Coordinators criticized academic state experts' distance from practical project work, they highlighted the knowledge of sea turtles that the volunteers have gained from their intensive work - Coordinators have a certain degree of latitude when interpreting the nest relocation criteria, because only in very few cases would a biologist be in a position to visit the beach and inspect the nest sites - The state was not afraid to exert its formal authority over the volunteers, as in one contentious instance during the Bogue Banks relocation ban
Foljanty-Jost (2011) Local reforms in Japan and Germany	Citizens play at least two major roles: - Citizens fulfill the role of co-producers in political decision-making processes - Citizens take on the role of supporters of policy implementation processes.
Nimegeer et al. (2011) Health services within more distant rural area's	- Engagement is a process of trust and relationship-building rather than a one-off intervention - Communities often lack of commitment to change, thinking differently and persistence in addressing the barriers of legislation and regulation by service providers that is a barrier to rural health service reconfiguration
Sharma et al. (2011) Long-term health conditions or diabetes	- A change towards a more partnership oriented consultation style - Lay tutors reported an increase in confidence in attending consultations for themselves in which they discussed self-management of their condition with their clinicians - More experienced trained clinicians talked less than their patients and discussed psychosocial issues to a greater degree during a consultation as opposed to those clinicians newly trained
Groeneveld (2008) Amature soccer	- Volunteer recognition and development throughout the game is part and parcel of the activities - Football federations have the ability to be on the front lines of public service delivery

	regarding these social issues, and regarding their potential for positive social impact
Pouliot (2009)	(research to the perceptions of students to the assumptions of lay-men willingness to participate)
Higher scientific education	- The group's point of view evolved from that of qualifying the lay citizens' position as being inconsistent to one that held the citizens' position to be consistent
	- Whereas the better portion of this description concerns citizens having little or no interest in the controversy
Vaillancourt (2009)	- The presence of the social economy contributes to a triple democratization
	- It fosters the democratization both of practices, of policy development (co-construction) and of operationalization of new policy (co-production)
Policy reform in Canada	
De Vries (2008)	- The vast majority are asked for support by colleagues within city hall and are inclined to ask for support from these colleagues
Dutch municipalities	- Next to this core there is the influence of political parties. It is striking that their support is hardly sought and that they are not mentioned very often as actors that express wishes or seek support from the policymakers.
	- Responses are relatively unvarying over the years. Despite minor deviations, the overall structure of this network does not change. This goes for local administrators as well as local politicians in their support-seeking behavior, although this stability is stronger for administrators.
	- Although societal groups seek the support of local politicians and to a lesser degree that of administrators, policymakers are much less inclined to seek the support of societal groups.
	- The position of societal groups was unvarying during the whole period of investigation, while it was expected, because of the structural reforms and the experiments described above, that their position would become more influential.
Mitlin (2008)	- Citizen groups have taken over relational and physical space that is typically seen as state "territory" and have
Various	reached some level of cooperation with the responsible state agencies
	- However these activities have not been promoted by the state and its officials, nor are these examples of provision motivated by income generation
Hyde & Davies (2004)	- Service design, organizational culture and organizational performance seem linked together in complex recursive relationships in mental health services
Mental health care	- Difficulties associated with ensuring the primacy of the service user without fundamentally challenging service design arrangements are thus demonstrated
	- Cultural assumptions (and deeper processes) interact with service design leading to emergent cultural artefacts that impact on organizational performance
	- There may be some links between these cultures and resultant organizational performance
Li (2004)	- Symbiotic niceness represents a core component of professional and patient identity which works to maintain social order as well as to advance personal, professional and organizational aspirations.
Palliative care	- It suggests that the niceness of patients has implications for the nurses' own performance of niceness, which is in turn a key component of the emotional labor that contributes to psychosocial care.
Trummer et al. (2006)	- In the intervention group length of hospital stay was shorter (by 1 day), incidence of post-surgery tachyarrhythmia was reduced (by 15%), transfer to less intensive care levels was faster and patient ratings for communicative quality of care by doctors and nurses were improved
Heart surgery in Austria	- Emotional quality of communication with physician had a strong effect on care-level adjusted duration of stay

	-	Frequency of self-administered and self-monitored breathing exercises, our indicator of health behavior, was correlated with patient satisfaction
Glover (2002)	-	A relationship exists between citizenship orientations and exposure to different models of service production
Canadian community centre's	-	People with certain citizenship orientations might be more inclined to use community centers that adopt particular models of service production.
Karim-Aly et al. (2003)	-	Established partnership that survived institutional realignments and career changes among both partner institutions
Environmental knowledge	-	The most difficult task of a participatory research project is the establishment of a common vocabulary so as to communicate concerns, interests, and questions
O'Rourke & Macey (2003)	-	The bucket brigades (citizens who can see on the content of buckets what the influence of pollution is) are inclusive, bringing previously excluded groups and technical "amateurs" into dialogues about pollution and health issues
Environmental knowledge	-	The bucket brigades support place-based organizing, creating new mechanisms for mobilizing around local environmental improvements
	-	The brigades introduce community members into environmental disputes very early- almost immediately as a pollution event is occurring and often before regulatory agencies have arrived on the scene
	-	The brigades help to increase knowledge of emissions and potential health risks, raising awareness and strengthening the technical skills of local community members
Forsyth (2001)	-	Current forms of environmental discourse are inherently reflective of values and framings of environmentalism characteristic of the new social movements and identity
Environmental activism		politics of postindustrial Europe and North America
Kingfisher (1998)	-	Workers believed that the vast majority of their clients were `lazy', wanting to get something for nothing
Poverty support	-	Constructions of clients as `liars' were as frequent as constructions of clients as `lazy'
	-	Workers extrapolated from a particular case to make a generalization about all clients. This generalization has implications for the specific kinds of policy that workers co-produce
Reisig & Giacomazzi (1998)	-	Positive attitudes toward the police are not a necessary precursor of collaborative police-community partnerships
Public safety	-	As the perceptions of crime worsened and fear increased, attitudes toward officer demeanor decreased
	-	all age groups expressed some level of support for the implementation of citizen-police collaborative partnerships

Table 11 Outcomes of co-creation/co-production studies without a beforehand formulated objective

If we look at this table, we see that the reported outcomes are more positive than in previous tables. This can be explained by the fact that in the studies no comparison was made with the goals that were formulated in the studied co-creation/co-production processes or with general considerations that were used to legitimize co-production/creation. The positive outcomes that were formulated refer to better, more co-operative ways of communication, interaction and learning (Feller et al, 200, Gebauer et al. 2010, Ryan, 2010, Gillard et al, 2012; Sharma et al, 2011; Hyde & Davies, 2004;) which also helps to insert new bodies of knowledge and experiences (Cornwell & Campbell, 2011; Sharma et al, 2011; O'Rourke & Macey, 2003), helps to set up new forms of self-support (Gillard et al., 2012; Trummer et al, 2006) and satisfaction (Trummer et al, 2006) and which can be seen as expression of trust, self-recognition and a new identity (Groeneveld, 2008; Mitlin, 2008; Li, 2004; Forsyth, 2001).

The general conclusion from our review on the reported outcomes, is that hardly any empirical material can be found that systematically assess the outcomes of co-production and co-creation in comparison to the specific goals that were formulated. However, this supposes that these goals have been formulated. As we have shown in our review, many of the eligible studies do not closely refer to the goals that were formulated to co-creation/co-production process or do not even refer to general considerations for co-creation/co-production. And, if these goals or considerations are present, the outcomes seem to be rather negative or they are framed in terms of barriers and conditions. If these goals of considerations are not present in the studies, then it seems that the outcomes that are reported are more positive. An explanation could be that there is no frame of reference for comparison.

5   Conclusion and implications for social innovation studies

Social innovation and co-creation are magic concepts that have been introduced during the last years to modernize the public sector and to find a new balance between the responsibilities of citizens on the one hand and government on the other hand. A central assumption in social innovation is that citizens are seen as important stakeholder that should be involved in the design of new services that really matter and that really addresses the needs of society, in their implementation and their production. However, what do we really know about the conditions under which citizens and governments are able and willing to participate in this process of co-creation and what are the outcomes that have been reported? What are critical factors that influence the process of co-creation by citizens in social innovation in the public sector? In order to investigate these factors we have conducted a systematic review.

As became evident quite quickly, co-creation during public innovation is a rather limited body of knowledge. However, in the public administration literature related concepts are being used that refer to the same process: the participation of citizens in the production of public services. Therefore we have also taken into account articles that have been written about co-production. We assumed that in co-creation literature the emphasis was primarily put on the involvement of citizens in the design of public services, while in the co-production literature the emphasis was primarily put on the involvement of citizens in the production and implementation process of public services. However, our systematic reviewed showed that both concepts were very often used as interchangeable concepts. Although, the aspect of co-design was to some extent more dominant in the co-creation literature, it was also an element that was quite present in the co-production literature. This same is also true for the co-implementation aspect. Co-creation was also often seen as process of co-implementing public services.

However, we can also identify important differences between the two bodies of knowledge. In the literature on co-creation almost half of the contributions co-creation is defined as *value* co-creation. The notion of value is absent in the coproduction literature. In the co-production literature we see that the emphasis is primarily put on the rearrangement of the relationships between government and citizens, that become more horizontal in terms of a partnership that is being created.

What is the reason that governments open up the possibility to develop co-creative processes to develop and implement new services? What is the object of co-creation? The *objectives* that co-creation/co-production must obtain vary from trying to improve the efficiency of public services in

relation to shrinking budgets, to the improvement of legitimacy and effectiveness of public services by taking the needs of citizens into account. However remarkable is that in most studies such an objective is not described. These contributions are primarily aimed at explaining 'how co-creation and co-production can be established' and 'what is needed in order to do that'. The question 'why one should co-create/co-produce' is very often not asked. We conclude that the co-creation and coproduction very often seems to be a virtue in itself.

Another way to understand the object of co-creation/co-production is to see how co-creation and coproduction are defined. And again, not always are the concepts defined, but are taken for granted. If both concepts were defined three elements seem to be recurring. First, both concepts refer to the active involvement of citizens, which is based on partnership and a joint responsibility between government and citizens. Secondly, the sharing of resources has also been seen as a striking element. Thirdly, the sharing of resources was primarily found in coproducing relevant and alternative knowledge.

We also looked at the domains in which co-creation and coproduction practices have occurred and have been analyzed. The conclusion is that co-creation and coproduction is a practice that can be found in numerous policy sectors, although the dominance of health care and education shows that it is particularly popular in 'soft' policy sectors. If we look how these practices are studied we see that most authors conducted a single-case or a comparative case study. On the one hand this seems to be understandable given the importance that in the innovation literature is attached to study innovations in their specific local contexts. The case studies show that characteristics of the specific context play an important role in explaining the co-creation/coproduction dynamics that takes place. On the other hand, the dominance of the case study method seems to limits the degree in which we can draw general conclusions regarding the influence of specific drivers and barriers as well as relevant outcomes. A possible danger of this dominant approach could be that all the explanations that are found are always 'contingent', and thus local ones, which prevents us to look for more general factors and more local factors that should be taken into consideration.

What about the forms of coproduction/co-creation that can be distinguished? In doing so we made a distinction between citizens as a co-designer, a co-producer or co-implementer of public services and citizens that act as initiator of new services. Most dominant is a form in which citizens are the co-producer or co-implementer of services that already have been defined by government, followed by a form in which citizens are co-designer, while the number of practices in which citizens are the initiator is very limited.

We also looked at relevant factors that influence the way in which citizens and governments are really able and willing to participate in the design and coproduction of new innovative public services. In general we see that two types of factors can be distinguished. First, factors that deal with an number of organizational and institutional issues on the government side. Second, factors that refer to the willingness and capabilities of citizens to participate. On the organizational and institutional side we identified that especially the characteristics of the administrative culture in relationship to the dominant attitude of public officials towards public participation seems to be very important as well as the compatibility of the public organization's systems, routines, procedures to citizen participation. On the

citizen side awareness, intrinsic values and the presence of social capital seems to be important. Last, but not least a number of additional factors, also on the organizational and institutional side were mentioned, like the presence of supporting policy, the ability to share information, the presence of policy or social entrepreneurs, financial support and the degree in which professionals are able and willing to make use of their discretionary power.

Last, we looked to the outcomes of co-creation and co-production processes in the public sector. The general conclusion from our review, when looking at reported outcomes, is that hardly any empirical material can be found that systematically assess the outcomes of coproduction and co-creation in comparison to the specific goals that were formulated. However, this supposes that these goals have been formulated. As we have shown in our review, many of the eligible studies do not closely refer to the goals that were related to co-creation/coproduction process or do not refer to rather general considerations. And, if these goals or considerations are present, the outcomes seem to be rather negative or they are framed in terms of barriers and conditions. If these goals of considerations are not present in the studies, then it seems that the outcomes that are reported are more positive. The reason for that could be that there is no frame of reference for comparison.

In sum, this article has reviewed the evidence on co-creation and co-production in public services. It seems that the co-creation and co-production literature has identified a number of definitions, forms and objects of study, often employing a qualitative case-study approach. Next to this, they have identified various factors which can be influential in starting with co-creation processes, such as the acceptance of citizens as partners. Lastly, we analyzed various outcomes. It became apparent that outcomes are infrequently studied, and co-creation is often seen as a value it itself. All in all, co-creation during public innovation seems to be an interesting topic, with much potential for both scholars and practitioners. Embracing and further researching co-creation during public innovation should therefore provide a fruitful endeavor for both researchers and practitioners alike.

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