Mapmaking and the (re) organization of professional practice: a case study of Dutch primary care

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Abstract

Combining insights from sociology and geography, we examine how professionals organize professional relations, beyond the boundaries of their professional groups and through the process of mapmaking. We take the Netherlands as our case study. Here, between 2009 and 2015, the Ministry of Health initiated a program that stimulated professionals to develop alternative organizational formats for the provision of integrated primary care. Two of the funded projects used mapping techniques in order to give direction to such integrated organizational formats. Based on the literature, we develop and deploy an analytical framework that aims to capture: (1) how professionals shaped interprofessional relations through mapmaking; and (2) what the organizational consequences were of the maps developed. We reveal how professionals differentiated between elements during the mapmaking process. We furthermore demonstrate how such differentiations shaped the developed maps in particular ways. This, in turn, influenced whether and how these maps gave direction to new organizational formats. We close this article with three points that scholars need to take into account when studying mapmaking in order to gain processual and dynamic insight into the organization of professional practice.

Keywords: maps and mapmaking; organized professionalism; multidisciplinary collaboration; integrated primary care

Introduction

Classically, in the heydays of professional autonomy, sociologists that studied the formation of professional groups and their domains, focused on the ways in which these groups defined, delineated and defended distinct professional roles, responsibilities and fields of knowledge (Freidson 1973). In this line of theorizing, professional groups controlled the content and boundaries of their professional domains – and how these developed over the years – by continuously differentiating between who and what should be included into and excluded from their particular professions (Freidson 1973; Abbott 1988).

Since the 1990s, however, a more collaborative and accountability-based governance model has replaced professional autonomy in many Western countries (Light 2010; Lawrence et al. 2013; Berwick 2016). With this shift in governance, new actors have entered the healthcare arena and started to exert influence on the content and boundaries of healthcare services. In line with this development, sociologists are increasingly realizing that the content, boundaries, and organization of professional practice is not just shaped by professional groups, but also in response to broader societal developments and in interaction with professional others (Evetts 2003; Waring and Currie 2009; Noordegraaf et al. 2014).

In this context, identifying professional heartlands, boundaries, and turf wars, no longer suffices as an analytical strategy to understand organizational dynamics in healthcare governance – if ever it did (Abbott 1995). Such readings produce images of stasis, conflict, and misplaced professional autonomy in the history and future of organized professional practice. They overlook the fact that individual professionals, professional groups, and 'professional others' continuously split, join, merge, or dissolve on different levels, in different time-spaces and in relation to different developments in the governance of care (Adler et al. 2008). A sociology of organized professionalism should therefore dedicate itself to providing more detailed, dynamic, and processual insights into how interprofessional relations are crafted and recrafted and how such continuous crafting affects the content and organization of professional work (Abbott 1995).

Although allegories such as heartlands and peripheries, boundaries and turf wars, no longer suffice to describe the history and future of professionalism (Abbott 1995), some organizational scholars have started to take the spatial dimensions of (organized) professionalism and professional practice seriously (Postma 2015; Ivanova et al. 2016). Of particular concern in this article is the concept of 'mapping' interprofessional relations. Informed by geography, we point out that professional maps – and the processes of making them – are particularly interesting cases to study the crafting and recrafting

of interprofessional relations (Pinder et al. 2005; Jones 2009). Such maps organize and represent interprofessional relations in a particular, discursive way (Harley 1988). Moreover, by producing a particular representation of such relations in the present, these maps give direction to possible futures (Turnbull 2007). Professional maps can therefore be described as a constitutive force in how we think about, represent, and engage with the organization of professional practice (Postma 2015).

We focus on Dutch primary care in order to examine the crafting of interprofessional relations – and the perpetuation of these in new organizational formats – through the process of mapmaking. In the Netherlands, similar to many Western countries, healthcare is provided, influenced, and regulated by an increasing variety of actors, including professionals, policymakers, inspectorates, health insurers, and patient organizations (Van de Bovenkamp et al. 2014). Some of these actors have stimulated individual professionals to organize themselves beyond the confines of their traditional professional groups and domains (Adler et al. 2008; Thomas and Hewitt 2011). A striking example is a policy program titled 'Primary Focus'. It was introduced by the Dutch Ministry of Health in 2009. It sought to stimulate the development of new organizational formats for the provision of integrated, patient-centered primary care on a regional scale (ZonMw 2015).

In this article, we study two projects that were funded in the context of the Primary Focus program. These two projects explicitly used mapping techniques in order to give direction and meaning to the (re)organization of interprofessional relations in the provision of integrated primary care. Combining a sociology of professions with insights from geography (Abbott 1995; Jones 2009), we argue that these maps – and the process of making them – provide valuable insights into whether and how professionals shaped interprofessional relations beyond the traditional boundaries of their professions and in interaction with other professionals and 'professional others'. Our research questions are:

> *How did professionals shape interprofessional relations through the process of map making and what were the consequences thereof for the organization of integrated primary care?*

In the next section, we develop the theoretical framework through which we studied the mapping of interprofessional relations. This framework supports a more processual and dynamic reading of (organized) professionalism, dedicated to revealing the intricacies of shaping professional organizational formats beyond the boundaries of traditional professional groups. Thereafter, we introduce the two projects and provide methodological insight into how we studied them. Our theoretical framework and methodology are fol-

lowed by a detailed presentation of our findings and a discussion of their implications for understanding (organized) professionalism in contemporary healthcare governance.

Theory

In this section, we introduce a processual and dynamic approach toward studying professional groups in formation. Thereafter, we describe why the practice of mapmaking is an interesting case to study professional groups in formation.

Two approaches toward studying group formation

One of the fundamental characteristics of a group is that it has an inside and an outside; people, objects, and concepts that are considered part of the group and not part of it. Such insight has stimulated sociologists to study how professional groups differentiate between what is included into and excluded from their professional domains. This reading of professionalism has been used to explain how professional group compositions remain coherent over time (e.g. by controlling for membership) (Freidson 1973; Abbott 1988). Moreover, it has been used to describe how professional groups are able to adapt the content of their professions to a changing environment (e.g. including new technologies, principles, and insights as part of a professional domain; Felder et al. 2018). Because these readings take professional groups themselves as analytical starting points, they struggle to explain how professional groups dissolve, or how new professional groups are formed. At best, such dynamics are explained as hostile take-overs, or new territories to be occupied (Abbott 1995; Gieryn 1995; Hudson 2002).

In response to the above, Abbott (1995) challenges an assumption underlying the sociology of professions. He argues that sociologists should no longer start with groups and study how they remain coherent over time through continuously and intentionally differentiating between who and what is included into – and excluded from – their professional domains (e.g. Currie et al. 2012; Lawrence et al. 2013). Instead, sociologists should start identifying events of differentiation and study what such differentiations lead to, in terms of groups in formation. In other words, the group should no longer be presumed a priori, or taken as a starting point of analysis. Instead, groups should be interpreted as the temporary and accidental outcomes of an accumulation, or assemblage, of differentiations of all kinds (cf. Gieryn 1995).

Abbott (1995: 4-6) illustrates his point by presenting a historical analysis of the emergence of a group called 'social workers'. He traces how over the course of the 19th and 20th centuries – in many localities and through series of unplanned events – activities previ-

ously done by charities, churches, hospitals, psychiatrists, and settlement houses, were differentiated as distinct and connected to one another to form a systematic set of tasks, done by one role in particular: 'social workers'.

To explain how groups are formed through the sum of differentiations, Abbott (1995) introduces the concept of yoking. He starts by defining boundaries as sites of differentiation (e.g. [primary care/secondary care]; [oncological care/non-oncological care]; [registered healthcare providers/not registered healthcare providers]). Thereafter, he describes how some of these sites of differentiation can be connected to one another. With each connection made, one side of each differentiation becomes defined as the inside of a group (e.g. oncological primary care). In doing so, connections between two or more sites of differentiation together circumscribe a certain thing in the middle; a group that is distinct from its surroundings (e.g. oncological primary care provided by registered professionals) (figure 11).

In this line of theorizing, sites of differentiation can function in two ways. Either they function as the boundaries between groups, for example, when two groups share a site of differentiation (e.g. [registered oncological secondary care providers]/[registered oncological primary care providers]). Alternatively, sites of differentiation can become junctures in the formation of new groups (e.g. professionals that break down the primary/secondary care boundary and start working across these domains). According to Abbott (1995), the constitution of groups—and the boundaries between them—indeed change through the breaking open of old connections between sites of differentiation, or by the drawing of connections with new sites of differentiation (cf. Quick and Feldman 2014).

We live in a word full of events and sites of differentiation can take on many forms (Mead 1932 in Abbott 1995: 4). Differentiations can, for instance, be made between professional groups; patient flows; problems to be solved; bodies of knowledge and practices. In this light, the governance of care is no exception (Van de Bovenkamp et al. 2014). New actors enter the healthcare arena, new concepts and principles are introduced. New practices become possible with the introduction of new technologies and legislation. Existing practices, technologies, and bodies of knowledge are called into question, or broken into distinct parts. Hence, new sites of differentiation are constantly emerging and opportunities for the breaking open of old and drawing of new connections between these sites of differentiation abound (cf. Gieryn 1995). In this light, professional groups can be considered as in a constant state of formation.

In this world of events, professional groups can therefore only endure as a coherent group, when the differentiations that circumscribe them, continue to be repeated. According

to Abbott (1995), such repetition can be induced by forces that act upon groups from the outside (e.g. government legislation, recognized expertise), or by forces that regulate groups from the inside (e.g. a clear identity, membership criteria, tasks allocation, and an organized body or structure). Often it is a combination of both. After all, a group cannot reproduce itself without an internal structure and logics of reproduction. Neither can it endure when it is not recognized by the outside as the site were different 'insides of differentiation' are tied together to form a distinct whole (Wallenburg et al. 2012).

In order to understand the emergence, continuation, transformation, or dissolution of professional groups, Abbott (1995) emphasizes to start with the identification of sites of differentiation and the ways in which these are tied to other sites of differentiation. In doing so, he introduces a processual and dynamic approach to studying professional groups in formation. We use this approach to examine the crafting of interprofessional relations – and the emergence of new organizational formats for the provision of integrated primary care – beyond the boundaries of traditional professions in Dutch primary care. This is important, we argue, in order to bring into focus alternative organizational formats and sidestep traditional and rather stratified conceptions of organized professionalism (Adler et al. 2008; Noordegraaf et al. 2014). As we further develop in the next section, mapmaking is a particularly interesting case to study such alternative organizational formats 'in formation'.

Mapmaking as cases to study groups in formation

Organizational scholars have often used spatial metaphors to describe how organizations emergence, continue, transform, or dissolve. Examples are Abbott's (1988) previously discussed heartlands, boundaries, and territories. Some scholars have taken this analogy further and have started to actually study the spatial dimensions of healthcare organizations (e.g. Ivanova et al. 2016; Oldenhof et al. 2016). These scholars have turned to the discipline of geography to inform their studies. Examples are the relations between scale and organizational rationales (Postma 2015); or place as a product and producer of healthcare practices (Ivanova et al. 2016). Below, we would like to draw yet another analytical connection between geography an organization studies: the ties between organized professionalism and mapmaking (cf. Pinder et al. 2005).

Geography has traditionally concerned itself with the categorization of phenomena and with the placing of these phenomena in relation to one another across time and space (Harley 1988). Here, the map is the archetype product of geographers' efforts to represent the order and relations between people(s) and thing(s) (Harley 1988). Different maps can be drawn, with different categories and emphasizing different relations between categories (Pinder et al. 2005; Armstrong and Densham 2008). Maps can furthermore vary in

size, detail, and scale. Maps can thus represent relations in infinitely different ways. What appears on maps is therefore the product of how mapmakers give meaning to such relations at particular points in time and in the context of particular (political) agendas; issues, objects, roles, and identities to be (re)presented (Harley 1988). Maps thus tell stories of inclusion and exclusion, of similarities and differences, of ties and loose ends (Sauer 1956). As representations of particular present(s), maps furthermore give direction to possible futures (Turnbull 2007; Crampton 2009). Through maps, mapmakers give meaning to the world and direction to their own place and purpose in it.

Some geographers have therefore – and one might argue rather reflexively – stressed the importance of studying mapmaking processes in their own right (Crampton 2009; Jones 2009). Instead of analyzing the spatial relations between people and things (the traditional project of geography), these geographers aim to identify: (1) processes of differentiation through which categories emerge as distinct entities to be mapped (Jones 2009); and (2) to study how these constructed entities are subsequently connected to one another on maps in order to tell a particular story (Sauer 1956; Harley 1988). Much in line with Abbott (1995), these geographers are thus no longer concerned with how a particular story should be mapped (or how an organization should be spatially represented). Instead, they focus on identifying differentiations and the ways in which these are tied together on maps, in order to understand how a particular story emerges (or how differentiations and their spatial representation come to shape organizations).

In this light, mapmaking in the Dutch organization of integrated primary care is an interesting empirical case to study Abbott's (1995) sites of differentiation and professional groups in formation. In fact, analyzing such maps and the processes of making them, helps to gain insight into how professionals (as mapmakers) differentiate and give meaning to interprofessional relations and direction to the organization of integrated primary care, on a regional scale and – importantly – beyond traditional professional boundaries. In the next section, we further discuss how we have operationalized this approach.

Methodology

In this section, we first further introduce the Primary Focus program and the two projects that used mapping techniques to give meaning and direction to interprofessional relations in the organization of integrated primary care. Thereafter, we describe how we analyzed these projects.

The Primary Focus program and the two mapping projects

The organization of Dutch primary care is complex. First, the concept of 'primary care' is used to describe a variety of healthcare services, provided outside the hospital by a variety of professionals. Examples are general practitioners, physiotherapists, midwives, dentists, and neighborhood nurses (Van Wijngaarden et al. 2006). Second, these primary care providers have organized themselves in many different ways. Some professionals are self-employed, while simultaneously being members of professional groups (like the classic image of general practitioners); others are employees of healthcare organizations (like the classic image of neighborhood nurses). Some self-employed practitioners (e.g. general practitioners) are co-located with other types of practitioners (e.g. physiotherapists). Alternatively, professionals from different disciplines can be employees in the same healthcare organization (e.g. the general practitioner-nurse-pharmacist triad; cf. Saint-Pierre et al. 2017). Third, Dutch primary care is approached as a regulated market (Helderman et al. 2005). This means that healthcare professionals and/or the organizations in which they operate, compete with other professionals and/or organizations on the price, quality, and content of care provided (Postma and Roos 2015).

The Dutch Minister of Health observed in 2008 that the introduction of market mechanisms in 2006 had indeed stimulated primary care professionals to start competing with one another (Klink 2008). He furthermore observed that the sector was diversifying. Unfortunately, the minister observed, many primary care professionals continued to have an inward orientation toward the provision of primary care services. In other words, they were primarily oriented toward the norms, standards, and practices of their own professional groups. These professionals were therefore primarily focusing on parts of a patient's problems, without taking into account how their specific services fitted the bigger picture of a patient's care trajectory. This was especially problematic, the minister argued, in the context of rising numbers of patients with chronic diseases and multi-morbidity (Klink 2008). Even though different and multidisciplinary organizational formats were thus existing in Dutch primary care, the sector continued to be rather fragmented (Klink 2008).

The Primary Focus program was introduced in 2009 in order to counter such fragmentation and work toward the organization of integrated primary care services (ZonMw 2015). It specifically stimulated primary care professionals to collaborate in taking care of joint patients (Valentijn et al. 2015). The program objective was framed as follows: '*To better meet the needs of care-users, by strengthening multidisciplinary collaboration and coordination.*' (ZonMw 2009: 11) The program funded 67 projects that centered around specific care themes and were implemented on a regional scale (ZonMw 2009). The projects were proposed and carried out by groups of primary care professionals with different disciplinary backgrounds. The program is an interesting opportunity to study professional groups in

formation because it specifically aimed to stimulate professionals to look beyond their own professional groups and to develop new organizational formats for the provision of integrated care.

The two projects we examine in this article developed maps in order to give meaning to interprofessional collaboration and direction to new organizational formats for the provision of integrated care. The first project was titled 'Multidisciplinary Oncology Network' (MuON). In this project, the oncology department of a regional hospital and several oncological primary care professionals sought to strengthen the provision of integrated oncological care in the region. They observed that oncological care was increasingly taking place outside the regional hospital and closer to the homes of patients (Burghout 2011). However, the division of roles, responsibilities, and relations between the different secondary and primary care providers was unclear. For instance, it was unclear what the role of general practitioners was during the time that patients were supported by the oncological consultants of the hospital. Some general practitioners continued to support patients (mainly psychologically), whereas others did not. Moreover, the variety and number of professionals delivering oncological care outside the regional hospital was rising (IKNL 2018). Next to general practitioners, also outbound oncology consultants and physiotherapist, psychologists and home care organizations were starting to provide oncological care services. Some of these professionals were members of umbrella organizations, such as a national home cancer care network, or a regional palliative network. Nevertheless, oncology care in the region was considered fragmented. In this light, professionals that participated in the MuON project sought to (re)organize and integrate the delivery of oncology services in the region. They aimed to do so by mapping interprofessional relations and craft a distinct and comprehensive network of oncological healthcare providers. This mapped network was deemed necessary for: (1) professionals that wanted to refer patients to other professionals; and (2) patients that wanted to know which oncological care was provided in their region (MuON project documents 2009).

The second project was titled 'the Neighborhood Health Profile' (NHP). This project was initiated in a city in the east of the Netherlands. It was introduced in sync with other initiatives to organize multidisciplinary collaboration between primary care professionals for the provision of integrated care, on the level of the city's neighborhoods (Terpstra and Moerman 2013). In these collaboration initiatives, primary care professionals, neighborhood nurses, pharmacists' physiotherapists, dietitians, social workers, municipal health services, clients, and residents, were given 'free space' to experiment on how to collectively tackle health problems that occurred on the level of the neighborhood. In this context, the NHP project sought to give direction to such multidisciplinary collaboration, by mapping health and lifestyle issues on the level of the neighborhood. In a way, this project thus sought to

develop a knowledge base on which the multidisciplinary collaboration that was organized on the level of neighborhoods, could be stooled. As described by the project coordinators, mapping lifestyle and health issues on the neighborhood level was therefore only the first step of the project. Thereafter, the developed maps should be used to collectively discuss and identify themes for collaboration and to develop an integrated approach toward tackling the health and lifestyle issues identified (cf. Terpstra and Moerman 2013).

Data collection and analysis

The first and third authors participated in the Primary Focus program as researchers. They were commissioned by the program coordinator to study eight of the 67 funded projects in detail (SMOEL 2015). Their overall aim was to assess how participating professionals worked toward program objectives and to identify best practices (SMOEL 2015). The second and fourth authors supported the first and third authors in analyzing the data gathered and in writing this article. In the coming paragraphs, we specifically describe how data on the two mapping projects, 'MuON' and 'NHP', was gathered and analyzed.

The first and third authors used qualitative methods to study how participating professionals gave meaning and direction to interprofessional relations (Pink 2007). They started their inquiry with participatory observations. By invitation of the project leaders, they attended project meetings and several mapmaking workshops in which project members participated (12.5 hours). An observation scheme was used to record: (1) the setting in which observations were being made; (2) group compositions; (3) group dynamics; and (4) striking expressions (both verbal and non-verbal) by those that participated. In sync with participant observations, project documents were collected. Project leaders agreed to share their records, including meeting minutes and agendas, project proposals, and implementation plans. The first author was furthermore added to the mailing list of the two projects. The maps that were developed in the two projects were recorded as screenshots.

Participatory observations and collected documents were complemented with semi-structured interviews with the participating professionals. The topic list included: (1) project objectives; (2) professional and personal motives to participate; (3) reflections on the mapmaking process and collaboration amongst project members; (4) project outcomes. Eight participants of the MuON project were interviewed. These included the project leader (a primary care physiotherapist), another physiotherapist, a general practitioner, a specialist nurse from the hospital, a coordinator of a regional palliative care network, a hospital oncology manager, two directors of home care organizations, a nurse (project volunteer), and an oncology nurse. In addition, seven participants of the NHP project were interviewed. These included two general practitioners, a neighborhood nurse, a policy adviser of the local municipality, an epidemiologist, a manager of a home care organization, and a

prevention worker from the public health service. All interviews were audio-recorded and transcribed verbatim.

Informed by our theoretical framework, we analyzed the data on the following aspects. (1) Which sites of differentiation were articulated in the two projects and how were these differentiations placed in relation to one another? (2) How did participating professionals represent these differentiations and their relations on the maps developed? (3) What were the organizational consequences of the maps developed? Our empirical section is structured accordingly.

Findings

We start this empirical section with identifying sites of differentiation in the two projects. This, in order to identify categories that emerged as distinct entities to be mapped (cf. Abbott 1995). Thereafter, we discuss how, where and when, these categories were actually articulated and yoked together; particular so during the process of mapmaking (Jones 2009). We close this empirical section with our observations on how the mapmaking process – and the produced maps – contributed to the (re)organization of integrated primary care services (Crampton 2009).

Sites of differentiation

As we argued previously, organized professionalism has often been studied in terms of the traditional professions 'in formation'; thus taking traditional professions as an analytical starting point. This way, scholars have overlooked the fact that individual professionals, professional groups and 'professional others' continuously split, join, merge, or dissolve on different levels and in different time-spaces. Here, we therefore start the other way around and focus on the ways in which individual professionals sought to recraft the content an organization of primary care services, beyond the boundaries of the traditional professions and through the process of mapmaking.

The MuON project, for instance, was initiated by a specialized oncological primary care physiotherapist. She aimed to (re)organize the regional provision of oncological care. Particular so, by constructing a network between the oncology department of the regional hospital and different primary care providers that specialized in oncological care, closer to the homes of patients. Starting with her personal professional network, the physiotherapist organized a project group. This group included several physiotherapists, representatives of the oncology department of the regional hospital, a representative of an oncological

patient organization, and an oncological nursing organization that provides oncological patient support at home.

The project group wanted to separate themselves, and their oncology network under construction, from the messy reality of contemporary oncological primary care (physiotherapist, interview transcript 2013). The group stressed the importance for oncological patients and the (secondary) care professionals involved in their treatments, to contact 'the right' oncological primary care providers (www.muon.nl [discontinued]). Therefore, the group wanted to gain knowledge about which providers and which services were actually out there. They decided to develop a map of oncological primary care providers and their oncological primary care services. In this light, the group's main questions were who else (which professionals) and what (which healthcare services) should be considered oncological primary care and be depicted on the map. It is here that several sites of differentiation can be identified:

> [In the hospital/close to home]: the project group wanted to differentiate between oncological care provided in the hospital and oncology care provided close to home. Increasingly, primary care professionals were providing oncological healthcare services outside the hospital's polyclinics and closer to the homes of patients (oncological nurse, interview transcript 2012). It were these professionals that the project group was referring to when discussing collaboration between the regional hospital's oncology department and a plethora of oncological primary care providers.
>
> [Oncological care/non-oncological care]: the project group wanted to differentiate between oncological care and care that might be relevant for individual oncological patients, but which was not specific enough, oncologically, to complement an oncological care network (in the making). Participating professionals in the MuON project for instance discussed whether to include creative therapists into their network, as some of the oncological patients might enjoy painting after being treated (patient representative, interview transcript 2013). Others however aimed to only include what they identified as core healthcare services that were provided in addition to hospital services. Examples are physiotherapy, psychological support and nursing (physiotherapist, interview transcript 2013).
>
> [Qualified/non-qualified]: the project group also wanted to differentiate between who should actually be deemed qualified to provide oncology services close at home and who not. For some members of the group, the hospital should take the lead in this (hospital manager, interview transcript 2013). The hospital indeed proposed a list of criteria including in-service schooling, experience, and being registered. Other profes-

sionals however argued that it was up to the different professional groups themselves, to identify whether or not an individual professional had specialized itself in providing oncological care. For instance through competence profiles, in-service training and experience (physiotherapist, interview transcript 2013).

On the basis of these sites of differentiation, the group decided that only healthcare providers that were: (1) registered; (2) providing services recognized by the project group as oncological services; and (3) situated outside the hospital and close(r) to the homes of patients, would be depicted on the map (see also figure 11).

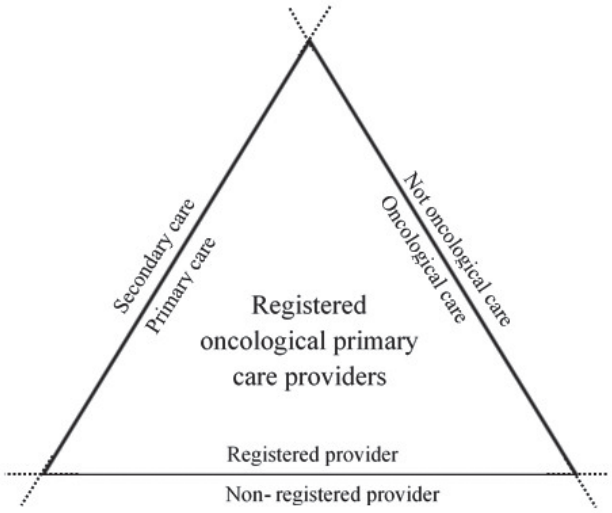

Figure 11: *Example of group formation through yoking between different sites of differentiation*

Also in case of the NHP project, at stake was the generation of knowledge. In the city in which this project was initiated, several 'other' projects had sought to organize multidisciplinary collaboration. Yet the professionals that participated in these projects had articulated the need to focus on specific health and lifestyle issues that could be tackled through collaborative action. Unlike the MuON project, in which a network was organized around the treatment of (individual) oncological patients, these professionals sought to organize collaboration around health and lifestyle issues on the level of the city's neighborhoods. In order to gain insight into the health and lifestyle issues that were out there, the project group wanted to map disease prevalence and lifestyle issues on the level of the neighborhood population. Their maps could subsequently inform which health and lifestyle issues were most stringent, which of these could be tackled through collaborative action and which professionals should collaborate in order to do so (the latter more in line with MuON, but only after heath issues had been mapped).

In the NHP project, sites of differentiations can be identified in three different stages. First, they can be observed in the gathering of health and lifestyle data (what data should inform the profile and how should it be collected). Second, they can be observed in the way in which professionals identified and prioritized care themes (based on the data selected and analyzed). Lastly, they can be observed in the way in which participating professionals discussed who should be included in tackling the care themes identified. Below, we describe sites of differentiation that were part of the first stage, the making of a neighborhood profile:

> [National data—neighborhood data]: the project group wanted to differentiate between national data and neighborhood data. Hence, one of the issues the project group addressed was the level on which data was gathered to inform the neighborhood profile. Previously, the municipal health services had used data gathered on an aggregate level (e.g. national databases on patient registrations) and thereafter extrapolated such data to gain insight into health issues on the level of the neighborhood. In order for the neighborhood profile to become recognized as a distinct body of knowledge, it was deemed necessary to gather data on the neighborhood level itself. The project group referred to such data as 'real neighborhood data' (Terpstra and Moerman 2013: 35).
>
> [Epidemiological data—professional insight]: the project group wanted to differentiate between what could be measured on the level of the neighborhood with 'appropriate' data sources and what professionals, active in a neighborhood, already knew individually. The group's epidemiologists for instance identified MIMS as a valuable data source. It could be used to map the prevalence of COPD, diabetes and (indications of) depressive disorders on the neighborhood level. Particularly so, because MIMS allowed for the extraction of data via four digit postal codes. In addition, via health insurers, healthcare expenditures (e.g. on pharmacy, general practitioners and mental healthcare) could be mapped on the level of neighborhoods (the latter however not specified through four digit postal codes but as defined by the municipalities). However, four digit postal codes and neighborhoods (as defined by the municipalities), do not always overlap. Moreover, some patients go to healthcare providers in neighborhoods other than their own. Therefore, the project group stressed that the extracted and mapped epidemiological data should always be complemented with the insights of professionals and neighborhood residents.
>
> [Relevant—non relevant categories]: Once accessible data sources were identified, the project group needed to identify which data was actually relevant to be included in the neighborhood profile, in order to gain insight into health and lifestyle issues. Emphasis was placed on psychosocial data (e.g. the outcomes of strength and difficul-

ties questionnaires in youth care and anxiety or lowliness scores); lifestyle data (e.g. Body Mass Index and number of residents with smoking habits); health issues (e.g. diabetes, COPD, depressions) and environmental data (e.g. presence of public green spaces). The project group furthermore decided to differentiate between age groups. This, because the disease prevalence and the best way to treat particular diseases, could vary significantly for different age groups.

Based on these sites of differentiation, the project group decided to: (1) use specific databases and monitors to extract real data on the level of neighborhoods; and (2) to analyze the data extracted, making use of categories that were relevant on the level of the neighborhoods population. In addition, the group emphasized that the data gathered should always be mirrored in—and complemented with—insights of professionals and neighborhood residents.

To sum up, both the MuON project and the NHP project used mapping techniques in order to develop and (re)present new knowledge in the context of a particular space. In the first project, this was knowledge about which professionals were providing which oncological primary care services in the region. In the second projects, this was knowledge about health and lifestyle issues on the level of the neighborhood. In line with these different objectives, the first project differentiated between professionals, their competencies and their services. The second project differentiated between different kinds of health and lifestyle data and analytical categories.

Mapmaking

As we will argue in this subsection, the maps developed can be considered representations of the abovementioned differentiations. However, we will also demonstrate that it was during the mapmaking process itself, that abovementioned sites of differentiation were articulated, further specified, and yoked together, in order to give meaning and direction to the organization of multidisciplinary collaboration.

In case of the MuON project, for instance, the map (to be developed) was recognized by the project group as way to represent their primary oncological care network under construction. Here, and in terms of representation, the map was a way to make their network tangible. In the words of a participating physiotherapist:

'*A network alone is not enough. In a way, getting to know one another in oncological care needs to be made tangible. It needs to be presented somewhere*.' (interview transcript 2013)

The map was to take shape as an interactive website, titled: www.muon.nu (carrying the title of the network [no longer online]). Here, the project group (re)presented the following network description:

> '*The MuON network brings patients and those nearest to them in contact with the right healthcare providers. Moreover, it connects different healthcare providers that are specialized in providing oncological care in contact with one another. Through this network, patients can contact provider(s) and providers can consult one another and learn to provide better care*.' (MuON 2013)

However, the website and its map cannot be approached as mere (re)presentations of an a priori defined network and its underlying sites of differentiation. In fact, mapmaking also shaped the way in which sites of differentiation developed during the project's unfolding. The project group's efforts to develop a map that distinguished their network from secondary oncological care (site of differentiation one) and the messy reality of contemporary oncological primary care (site of differentiation two), for instance, forced participating professionals to articulate, discuss and further specify admittance criteria (sites of differentiation two and three).

> Project group (member 1): '*I think we should follow the competence profiles of oncological nurses and palliative care and additional schooling in oncological care*.'
>
> Project group (member 2): '*What really needs to be added is work experience and additional courses. These furthermore need to meet to certain criteria*.' (fieldnotes, 2 February 2013)

Some of these admittance criteria were published on the MuON website. Only professionals that fitted these criteria could present themselves on the website and be included on the map. A search engine on the website subsequently guided visiting patients and/or professionals to these 'right' healthcare providers. The search engine consisted of three interacting features:

> 1. Patients and/or professionals could make a selection from predefined categories of registered primary care professionals that could deliver oncological primary care services (e.g. dietitians and physiotherapists that fitted admittance criteria).
>
> 2. Visitors could make a selection based on the healthcare questions they wanted to discuss with such a professional (e.g. anxiety, mobility, financial problems, or fever).

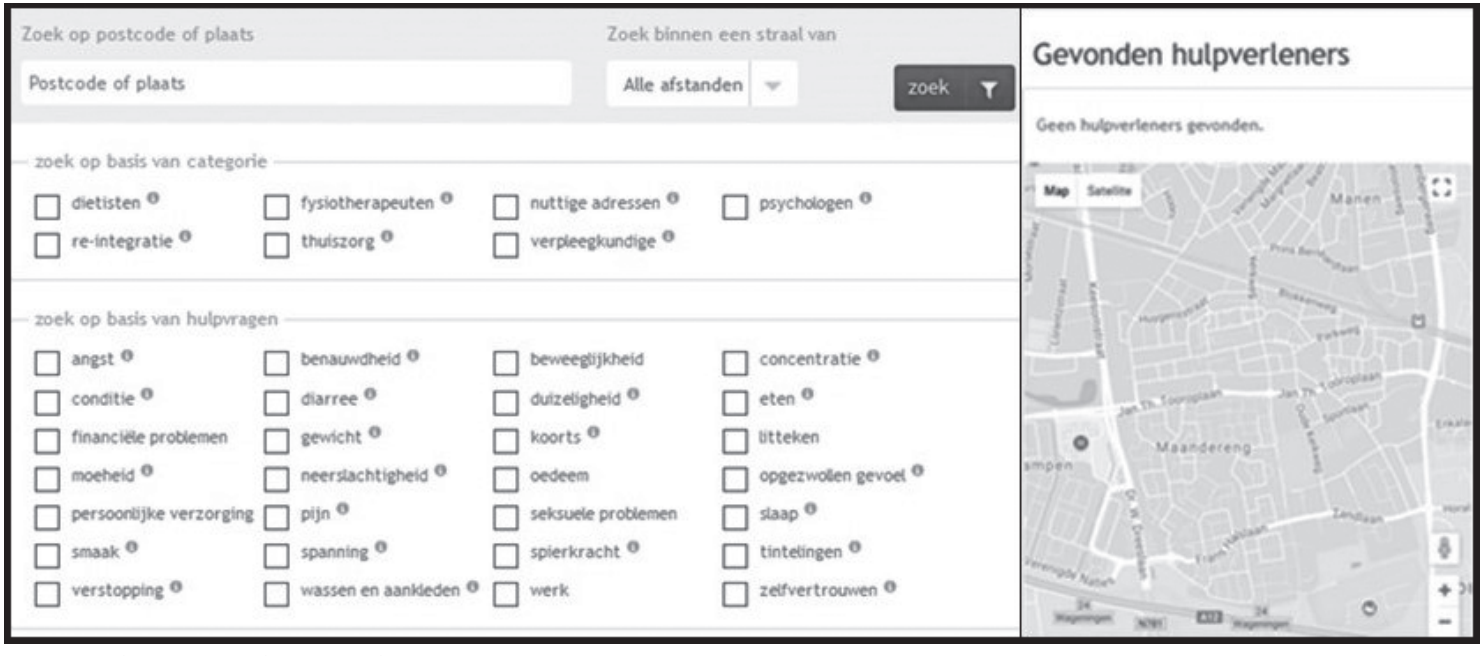

Figure 12: *The MuON search engine and its map*

3. Informed by abovementioned selections, relevant/right healthcare providers would appear on a google maps frame. This way, patients and professionals could find such providers close to the patient's home. To facilitate the latter, visitors could search for professionals within a particular radius (in km) from their six digit postal codes.

We have presented these different steps in a screenshot of the search engine on the www.muon.nu website (figure 12).

Similar to the MuON project, also in case of the NHP project, a site of differentiation sparked the need to map. In this case, it was the objective to develop new knowledge on the level of the neighborhood, based on real neighborhood data. However also here, new sites of differentiation were articulated as participating professionals sought to develop the map. They for instance, needed to specify which data could be accessed (site of differentiation five) and which of the data that could be accessed, was actually relevant to include in the neighborhood profile (site of differentiation six).

Yet, inclusiveness and accuracy were not the only characteristics that this project group was aiming for. In addition, the mapped neighborhood profile needed to be easy to understand, quickly to read, and helpful for identifying the most stringent health and lifestyle issues (Terpstra and Moerman 2013). In other words, professionals should be able to see on the map, in one glance, what the relevant issues were. The profile should therefore show instantly where the neighborhood population scored similar, better, or worse in comparison to other neighborhoods on a particular health or lifestyle category.

The developed map (see for a general overview figure 13), presents the categories that were had identified as most relevant (the rows). It furthermore distinguishes between children, adults, and elderly (the columns). Moreover, it intends to provide instant insight into how the neighborhood scores in relation to other neighborhoods. Red indicates it scores worse, yellow indicates it scores similar and green indicates it scores better than other neighborhoods do.

Based on these observations of the mapmaking process, we want to stress that some sites of differentiation emerged at the onset of the mapmaking projects (e.g. create an overview of oncological primary care or generate real neighborhood data). Others emerged as the project groups sought to come to terms with that which they actually intended to map (e.g. what actually is oncological primary care or what actually is relevant neighborhood data). Here, the maps actually forced the participating professionals to articulate new sites of differentiation and further specify previously articulated sites of differentiation. In that sense, differentiating and mapmaking were very much intertwined (Crampton 2009; Jones 2009).

Figure 13: *The neighborhood profile*

The perpetuation of the developed maps into new organizational formats

So far, we have identified how professionals in the two projects differentiated between elements (e.g. professionals, their qualifications, or data sources) in order to develop new knowledge that could support multidisciplinary collaboration. We furthermore observed how this sparked the need to map and how, during the mapmaking process, new sites of differentiation emerged, shaping the map, and the knowledge it (re)presented, in particular ways. However, the developed maps were not only deemed to represent knowledge. In turn, the maps developed were also deemed to give direction to the (re)organization of integrated primary care (Turnbull 2007). Below, we present whether and how these maps actually gave such direction.

MuON started as a project to reorganize the provision of oncological healthcare services in the primary care sector. Here, mapmaking was seen as a strategy to come to terms with, organize and represent a network of oncological primary care professionals and their integrated services. However, during the mapmaking process, intentions to rethink and reorganize professional relations in the context of oncological primary care, changed into something else. In line with the self-referential approaches of the hospital managers and general practitioners, such mapmaking changed into a project to plot different professional services within the existing organizational landscape of oncological care. In this light, mapmaking did not contribute to the reorganization of care beyond the boundaries and hierarchies of traditional professions. Rather, it reinforced such boundaries and hierarchies. Below, we discuss how.

While the MuON project group was discussing which admittance criteria needed to be used in order to allow professionals into the network and onto the map, the regional hospital's oncology department was making their own list of primary care providers, based on their own admittance criteria.

> Project group (member 1): '*This social chart [that of the hospital's oncology department] won't have the website format yet. It will be a leaflet depicting the care provided by oncology nurses*.'
>
> Project group (member 2): '*Well, that's nice. Will only nurses be depicted on the chart or will it show psychologists as well*?'
>
> Project group (member 1): *No, this is just the nursing part*.' (fieldnotes, 2 February 2013)

As a participating physiotherapist (interview transcript 2013) reflected on this development:

'*The problem is that the hospital is developing its own map, but doesn't want to share it with us. Now, two maps are being developed. That is redundant. We need to make sure ours functions better*.'

In the MuON project, the objective to integrate oncological referrals between the regional hospital and primary care providers—by means of maps—was materialized by the hospital and the MuON project group in different ways. For the hospital managers, a leaflet would suffice. This leaflet could help their medical specialists to refer patients to qualified primary oncological nursing care; in terms of hospital standards (hospital manager, interview transcript 2012). However, for the primary care professionals that participated in the project, the map would be a way to present themselves as part of a specific oncological primary care network. A network in which different kinds of 'the right' professionals collaborated and complemented one another in the provision of integrated oncological care services (physiotherapist, interview transcript 2012).

In addition to the above, general practitioners in the region were reluctant to support the project group. They, for instance, barely joined project meetings (field observations 2012). Those general practitioners that did participate stressed the importance of the different roles and positions in the Dutch healthcare system. General practitioners, for instance, considered themselves (and were often framed as such by policymakers) as the gatekeepers of healthcare services (Klink 2008). They were supposed to refer patients to either the hospital, or to other primary care professionals. From this perspective, the MuON website would be a good way to present to—and discuss with—patients which different oncological primary care services were present in a particular region. However, patients should not be encouraged to contact these professionals directly (when new symptoms would occur) and referrals should be done with a patient's general practitioner's consent (general practitioner, interview transcript 2013).

The general practitioners' objections were incorporated into and displayed on the MuON website. When visitors used the websites search engine, the following text message appeared:

'Caution: If you have any new symptoms for the first time, please contact your general practitioner or hospital consultant first.' (www.muon.nl [no longer online])

In the end, only few professionals have taken the effort to register themselves on the MuON website. The oncological primary care network and its map were thus not reproduced by registering primary care professionals. Neither was the MuON map recognized by others—such as secondary oncological care providers—as the map to use when referring

patients to oncological primary care providers. After all, the hospital had developed its own map. Lacking internal structure and external recognition, the oncological primary care network disintegrated. At the time of writing this article, the website and its map have been discontinued.

In contrast to the MuON project, the developed map in the NHP project did give direction to new organizational formats for the provision of integrated care. Instead of directly focusing on the integration of professional roles, this project had sought to develop knowledge about health and lifestyle issues on the level of the neighborhood. This knowledge, represented in the neighborhood profile, could be used to identify health and lifestyle issues on the level of the neighborhood population. This way, the neighborhood profile could support other collaboration initiatives that had already sprouted in the city (see again our case description in section three). This is illustrated by the action scheme illustrated in table 5 (Terpstra and Moerman 2013: 13).

Table 5: *The NHP action scheme*

Step	What	Who
1	Choosing a particular neighborhood.	A collaboration initiative and its group of professionals.
2	Fill in the neighborhood profile using the predefined data sources.	An epidemiologist of the municipality's healthcare services.
3	Discussing the results in a group meeting.	Composition of the professional group is discussed within the collaboration initiative; the epidemiologist presents outcomes; the collaboration initiative's coordinator interprets outcomes.
4	Choosing the three main issues in the neighborhood.	The group of professionals.
5	Discuss the outcomes of the profile and the priority setting (of step 4) with neighborhood residents.	Coordinated by an independent chairperson, attended by the professionals.
6	Decide on the issue to be tackled and discuss the phasing of the project.	The group of professionals.
7	Appoint a local project leader.	One of the professionals.
8	Identify interventions previously undertaken – or being taken – and those involved in them.	The project leader.
9	Develop a project plan for the first theme.	The professionals and organizations involved in this specific project.

The neighborhood profile indeed became an integral part of already initiated collaboration initiatives on the level of the neighborhood:

> '*Making and discussing the neighborhood profiles has induced a sense of connectedness between professionals and the neighborhood. The profiles were therefore not just a project objective, but also an instrument to stimulate collaboration*.' (Terpstra and Moerman 2013)

Moreover, the neighborhood profile also informed the writing and substantiating of the municipality's policies for neighborhood planning and development. In many ways, the NHP project group had: (1) structured how real neighborhood knowledge should be gathered; and (2) organized how such knowledge should inform collaborative action. Moreover, (3) the neighborhood profile developed was recognized by other groups, such as the municipality, as relevant knowledge. In contrast to the MuON case, the NHP thus seemed to have internal structure and external recognition. The map helped to carve out a new object that could be described as: neighborhood population management.

Based on the above, we would like to emphasize that whether and how maps and their underlying differentiations give direction to the (re)organization of healthcare services, seems to depend on three interrelated points. First, does the mapping contribute to an organization's internal structure and logics of reproduction (MuON's admittance criteria/ NHP's action scheme). Second, but related to the first, is this internal structure actually recognized and reproduced by (potential) organizational members (MuON's lack of registering providers/NHP's integration of the profile into other collaboration initiatives). Third, is the map recognized by organizational others as a distinct body of knowledge to be dealing with (e.g. MuON's lack of recognition from general practitioners and the hospital/NHP's uptake by the municipality).

Conclusion

In this article, we posed the following research questions: How did professionals shape interprofessional relations through the process of mapmaking and what were the consequences thereof for the organization of integrated primary care? In order to answer these questions, we took two mapping projects as our case studies. Informed by our theoretical framework, we analyzed these cases in a particular order. We first identified which sites of differentiation were articulated in the two projects and how these sites were yoked together (Abbott 1995). Thereafter, we reconstructed how these sites of differentiation and their interrelations emerged from the process of mapmaking (Jones 2009). Lastly, we discussed how the developed maps gave direction to the reorganization of integrated primary care (Turnbull 2007).

We noticed that sites of differentiation differed between the two projects. The MuON project sought to develop knowledge about which professionals were providing oncological primary care services in the region. They differentiated between professionals, their competencies, and their services. The NHP project sought to develop knowledge about health and lifestyle issues on the level of the neighborhood. They differentiated between different kinds of health and lifestyle data and analytical categories. We furthermore observed that in both projects, differentiating, yoking, and mapmaking were very much intertwined (Jones 2009). Some differentiations sparked the need to map (e.g. differentiating between oncological and non-oncological care providers, or real neighborhood data and extrapolated data). Others emerged, or needed to be further specified, during the mapmaking process. Mapping, in that sense, became an ongoing process of including and excluding providers and services (in case of MuON), or data sources and categories (in case of the NHP), from the maps under development.

We also noticed that the developed maps gave direction to the (re)organization of integrated primary care in different ways. In the MuON project, general practitioners problematized the use of the map by individual patients. In addition, the regional hospital developed its own map to cater to hospital needs specifically. Here, mapmaking changed into a project to plot different professional services within the existing organizational landscape of oncological care. Subsequently, the developed map did not contribute to the reorganization of oncological primary care beyond the boundaries of traditional professions. In contrast, the NHP map was integrated into multidisciplinary collaboration initiatives and gave direction to their thematic collaboration projects on the neighborhood level. There, it induced a sense of connectedness amongst professionals. Moreover, the map was recognized by the municipality as an important source of information on which their own neighborhood planning and development policies could be based. The NHP map thus helped to carve out a new collaborative organizational object: neighborhood population management.

Discussion

Our article resonates with current debates in the literature on organized professionalism (Evetts 2003; Waring and Currie 2009; Noordegraaf, Van der Steen, and Van Twist 2014). On the one hand, our analytical framework has been informed by a processual and dynamic reading of organized professionalism; an approach dedicated to revealing the intricacies of shaping professional organizational formats beyond the boundaries of traditional professional groups (Abbott 1995). On the other hand, our case study was informed by scholarship that focusses on the spatial dimensions of organized professionalism (Pinder et al. 2005; Postma 2015; Ivanova et al. 2016; Oldenhof et al. 2016). Combining the two,

we intended to better understand how a dynamic, Abbott (1995) inspired analysis of mapmaking, can give insight into the ways in which professionals organize interprofessional relations beyond the traditional boundaries of their professional groups (cf. Jones 2009).

Informed by our data, we argue that maps are indeed good sites to study Abbott's (1995) sites of differentiation and how these are yoked together to tell a particular, possibly alternative organizational story (Sauer 1956; cf. Harley 1988; Jones 2009). Moreover, studying the mapmaking process provided detailed insight into whether and how such maps actually gave meaning and direction to new organizational formats in the provision of care (Turnbull 2007; Crampton 2009). Nevertheless, we want to close this article with three points that need to be taken into account when studying maps and mapmaking in order to gain insight into the (re)organization of care, beyond the boundaries of traditional professional groups.

First, we want to emphasize that maps can take on many forms. In geography, maps are considered representations of the relationships between (pre)defined entities in the context of a particular space (Harley 1988; Crampton 2009; Jones 2009). Some of these representations are static; depicting how such entities are related to one another at a particular point in time by a particular mapmaker and in the context of particular political agendas (Harley 1988). Other representations are more interactive, with entities added or removed over time. As such, maps can take on many forms (e.g. Pinder et al. 2005). In our case, the MuON project developed an interactive website that displayed professionals and their services spatially (on a google/maps interface). In turn, the NHP project developed a structured one-page list of categories assessed on the spatial level of neighborhoods. Both maps thus depicted entities and their relations in the context of a particular time-space, but they did so in very different ways (figures 10 and 11).

Second, when identifying sites of differentiation in order to study professional groups in formation, such differentiations do not necessarily need to concern professional roles and positions, responsibilities and competencies (cf. Abbott 1995). In the MuON project, it were indeed mostly these themes that emerged as sites of differentiation. However, in the NHP project, main sites of differentiation were the relevance and accessibility of data and analytical categories. It were such sites of differentiation that carved out an alternative zone for organized collaborative action: thematic interventions on the level of the neighborhood; giving rise to a new object for (inter)professional work: population health management.

Third, different ways of differentiating and mapping thus seem to have different organizational consequences. In case of the NHP project, exploring and mapping healthcare issues

on the level of the neighborhood appeared to induce collaborative action. In contrast and in case of the MuON project, mapping interprofessional relations directly only appeared to invoke the reproduction of traditional professional roles and positions; particularly by those that sought to maintain their professional positions (cf. Felder et al. 2018). More empirical studies are however needed to shed light on the organizational consequences of different ways of mapping (and their underlying differentiations). In this article, based on previous work in the sociology of professions and organizations and social geography, we have laid the groundwork for such an approach.

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