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TOWARDS NEW SOCIAL MEDIA LOGIC IN HEALTHCARE AND ITS INTERPLAY WITH CLINICAL LOGIC

Research in Progress

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Abstract

Social media enable patients to communicate with a large number of their peers, share experiences, and provide each other with emotional and informational support. In this way, social media using patients develop a new logic in healthcare, which we propose as social media logic. This raises the question what this social media logic means and how it interconnects with traditional clinical logic. To address this question, we draw on interview data with participants from two online health communities to examine how this new social media logic emerges and how it interconnects with clinical logic. We provide preliminary findings through five themes showing that that patients favour experiential knowledge, feel need to connect with others, safely share information, feel empowered and either substitute or complement offline healthcare provision. As a next step, we plan to supplement our data with interviews from doctors and platform managers. We aim to contribute to the healthcare information systems research by addressing recent calls for research on emerging role of social media in healthcare.

Keywords: case study, social media logic, clinical logic, healthcare

1 Introduction

The healthcare consultation process between doctor and patient is considered to be a cornerstone of medical practice. It represents a formalized process of interaction in which the patient seeks advice from the doctor and the doctor attempts to provide a solution to the patient's problem. This process has been traditionally characterized by face-to-face interactions between doctor and patient as the primary way to exchange information (Hellowell et al. 2000; Street, 1991). This is embedded in a *clinical logic* in which doctors have the main role and knowledge to care for their patients (Reay and Hinings, 2009). By logic, we mean assumptions, values, beliefs, and rules that guide actors' behaviour in institutional environment (Thornton and Ocasio, 1999).

The emergence of the Internet has brought about change and patients now also turn to online sources to look for health related information. For example, a recent Pew Research study shows that 72% of the Internet users in the USA searched for health information online in 2012 (Fox and Duggan, 2013). They looked for information on conditions, doctors, treatments, procedures and ways to communicate with other patients. Many of those who search for health information online turn to social media (Hu et al. 2012) following proliferation of social media use in the healthcare domain (Kane et al. 2009). By social media, we mean the group of Internet-based applications that allow the creation and exchange of user generated content (Kaplan and Haenlein, 2010). Social media allow patients to move from one-to-one and one-to many to many-to-many communication (Hawn, 2009). In this way, patients can connect with their peers and feel supported (Lau and Kwok, 2009; Ziebland and Wyke, 2012). Hence, patients extend their traditional sources of information and interactions with friends and fellow patients (Rains, 2007). However, with social media, patients go further and exchange health advice and build their knowledge through different types of informational support (Antheunis et al. 2013; Lederman et al. 2014). This helps them to improve their ability to self-manage their condition relying on social media (Bauer et al. 2013; Merolli et al. 2015). In this way, patients rely on open and sharing communication between each other in which they can equally participate, which features a *social media logic*.

When patients adopt this *social media logic* and include this in their communication with their doctors, it may have effects on this process (White and Horvitz, 2009). On the one hand, Agarwal et al. (2010) suggest that the use of online information may lead to tensions with their doctors if patients find online information more credible than information provided by their doctors. Accordingly, it may alter roles that doctors fulfil in the healthcare system (Andersen et al. 2012), thus affecting traditional *clinical logic*. On the other hand, it may also complement *clinical logic* by making it more patient centred (Hawn, 2009). Although some research focuses on the type of use by patients (Antheunis et al. 2013; Broom, 2005; Colineau and Paris, 2010), we know little on how patients develop *social media logic* and how this affects a *clinical logic*. This indicates a need for deeper understanding of the impact of social media in healthcare and Information Systems (IS) scholars call for the research on this topic (Agarwal et al. 2010; Fichman et al. 2011). To address this gap and respond to the calls, we pose the following research question:

"How do patients develop social media logic and how does this logic interconnect with a clinical logic?"

To address this question, we draw on an institutional logics perspective (Friedland and Alford, 1991) and study two online health communities employing interpretive case study approach (Walsham, 1995, 2006). We advance our understanding of the interplay of *social media logic* and *clinical logic* in healthcare. In particular, we introduce a new concept of *social media logic* in healthcare and provoke a discussion on how this interconnects with a traditional *clinical logic* in healthcare, thus making a contribution towards institutional logics perspective and healthcare information systems research. Practically, we provide a better understanding of social media use by patients, which can assist healthcare providers and policy makers. By understanding how new logic emerges and interconnects with *clinical*

logic, healthcare providers and policy makers can improve their communication strategies and health interventions.

2 Theoretical background

This section outlines the theoretical concepts that we draw on and current literature on social media in healthcare with the objective to gain insights into the interplay of *social media logic* with *clinical logic*. First, we present the concept of institutional logics and elaborate on the concept of *clinical logic*. Following this, we provide a brief literature review on social media in healthcare and the proposition of *social media logic*. Friedland and Alford (1991) argue that each sector is guided by an institutional logic. Institutional logics are defined as “the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” (Thornton and Ocasio (1999: 804). Although two or more institutional logics may exist at the same, there is usually one dominant logic (Scott, 2008). The institutional logic shapes interactions of actors in these settings, for example doctor-patient interactions within healthcare. In the healthcare context, the dominant institutional logics is *clinical logic* (Reay and Hinings, 2009). *Clinical logic* is characterized by doctor-patient relationship in which doctor guides the process. Doctors rely on their knowledge to identify what the right care is and cooperate with other healthcare professionals to provide this care. With this approach, patients follow their doctors. As such, doctor-patient relationship is characterized by formal process in which doctor acts as an expert. With such approach, doctor is a key decision maker in medical domain (Giaimo, 2002). Although the efforts were made to increase patient’s participation and satisfaction in this process, the information asymmetry between doctor and patient remained high, which points to the dominance of *clinical logic* (Pilnick and Dingwall, 2011). The underlying reason may be that for many years other alternative sources of information for the patients such as, for example, books and other patients, were not easily accessible due to travel and mobility restrictions and outdated materials (Broom, 2005).

However, in recent years, social media and patient’s online communication have experienced proliferation (Kane et al. 2009). In particular, this led to the rapid emergence of online support groups (Coursaris and Liu, 2009; Maloney-Krichmar and Preece, 2005; Rodgers and Chen, 2005; Ziebland and Wyke, 2012). This enables patients to reach a large number of peers and move the communication to an online world in a representative way (Pagoto et al. 2014). Patients utilize social media to get the sense of belonging and foster relationships between each other (Colineau and Paris, 2010; Frost and Massagli, 2008). They also share emotional difficulties and encourage each other, thus focusing on emotional support (Menon et al. 2014; van Uden-Kraan et al. 2008). Furthermore, with social media, patients also go beyond the emotional support and provide each other with informational support. In particular, they exchange experiential, scientific and non-medical information (Lederman et al. 2014). Although these aspects are not traditionally part of *clinical logic*, they enable patients to easily exchange health advice and build their knowledge (Antheunis et al. 2013). Moreover, patients share their data when they believe it can help others (Anderson and Agarwal, 2011) and this increases their knowledge about their condition and potential treatments (Wicks et al. 2012). It also enables patients to self-manage their disease relying on online social media (Bauer et al. 2013; Merolli et al. 2015).

In this way, social media offers a different logic in healthcare, which we refer to as *social media logic*. It is enabled by social media that enable patients to post and receive content from each other and make connections with each other. It is well reflected through the social media affordances concept (Treem and Leonardi, 2012). They propose that social media communication is characterized by visibility, editability, persistence, and association in organizations. These principles also apply to social media health communities in which patients can make their knowledge and communication visible to others (visibility), they can edit and build on each other’s content (editability), their communication remains accessible even when they are not present (persistence) and they create connections between each other or with the content (associations). These distinct characteristics of social media explain how pa-

tients can easily and openly share information, but not how they develop *social media logic* in healthcare.

When patients give more credence to the online opinions and experiences of fellow sufferers from social media than they do to their doctors, it may potentially lead to tensions between the two (Agarwal et al. 2010). For example, patients can get empowered (Broom, 2005; Colineau and Paris, 2010) and roles and responsibilities of doctors may be altered (Andersen et al. 2012; Overby et al. 2010). Thus, *social media logic* may confront with *clinical logic*. However, it could also bring benefits. For examples, doctors may take more patient-centred approach (Hawn, 2009) and thus *social media logic* complements *clinical logic*. Yet, it remains unclear how *social media logic* interconnects with *clinical logic* and effects of social media remain under-explored (Baptista et al. 2010), especially in the healthcare domain (Agarwal et al. 2010; Fichman et al. 2011).

3 Methodology

Research design: Our initial research question aims to provide a better grasp and explore phenomena which are poorly understood as we raise how question. Hence, qualitative approach is appropriate (Maxwell, 2005; Yin, 1994). In particular, to study the interplay of *social media logic* and *clinical logic*, we adopt interpretivist approach (Walsham, 1995, 2006). Thus, we assume that actors create and connect their subjective meanings through interaction within their context (Orlikowski and Baroudi, 1991).

Case descriptions: We selected two contrasting cases of social media communities in Western Europe. The first is one of the largest and best known online diabetes platforms in Europe and the other one is a social media online community for brain injury patients. We chose diabetes as earlier studies have shown that chronic disease patients are more inclined to use social media in relation to their condition (Fox, 2011). Furthermore, social media utilization by this type of patients is more likely to replace their offline interactions with doctors and allow them to self-manage their disease (Hwang and Christensen, 2008). Therefore, the management of diabetes provides a case in which *social media logic* may be more likely to confront with traditional *clinical logic* due to the characteristics of the health condition and size of the patient community. We studied www.diabetes.co.uk, an online diabetes community that was set up by an independent third party in 2007, offering an informative web site about diabetes management and the possibility to interact with fellow diabetes patients. It enables users to browse the site for different purposes such as learning about diets, blood glucose measurement devices and different organizations in Europe that support diabetes patients. So far, it has become a leading online diabetes community with over 140,000 forum members. Our second case is a *Facebook* community of brain injury patients in the Netherlands. It has a bit less than 150 members. It was as an initiative of few patients taking part in a project to help the rehabilitation of brain injury patients. We argue that it may be less likely to confront with traditional *clinical logic* due to complexity of condition and size of the community. Overall, our cases differ in size, complexity of condition and likelihood of confronting with traditional *clinical logic*. Such paired selection of cases provides an opportunity to understand distinctions and interplay between the cases (Pettigrew, 1990).

Data collection: Our primary source of data is interviews with patients from the two online communities. So far, we have conducted 14 interviews (13 patients and 1 doctor). In our selection of interviews, we aimed to interview both very active users and very passive users (in terms of posting in the social media communities). In addition, in the brain injury case, we interviewed patients who participated in setting up the *Facebook* community in order to get insights on its development since it was founded. The interviews we have conducted so far took place in 2014 and 2015. Interviews were conducted in semi-structured way, which provides reliable and comparable qualitative data. To develop our semi-structured interviews, we first observed the online content of the community and exchanged informal messages with participants in order to gain understanding of the topic, which allowed us to prepare relevant semi-structured questions as well as to select different interviewees. The questions asked to the interviews concerned the history of their condition, their use of social media community, what they

value in using social media community, outcomes of social media use, current relationship with their doctors (general practitioners and specialists), changes in the relationship with their doctors and how the use of social media health communities complement or substitute relationship with their doctors. Duration of the interviews ranged from 30 minutes to 1,5 hours. The interviews were taped and transcribed. Three interviews were conducted via private text messages within the community due to the reluctance of these interviewees to speak verbally to the researcher. In a number of instances, during the data analysis phase, we contacted interviewees again in order to clarify points or pose additional questions. In addition to the interviews, we also supplemented our data with online content from the social media communities and informal observations of offline gatherings patients of one of the platforms (a sports event and lunch with brain injury patients). We observed communication of both communities as well as posts/replies of our interviewees. We also had initial talks with healthcare professional who is manager of the rehabilitation program for the brain injury patients. This helped us to understand the context of our cases and triangulate our sources of data, which leads to richer information from the cases (Yin, 1994). In addition, we plan to conduct interviews with doctors who deal with diabetes and brain injury patients. In doing so, we will conduct interviews both with general practitioners and specialists. This will enrich our insights on how *social media logic* interconnects with *clinical logic* from the perspective of doctors. Overall, it will enable us to gain richer understanding of the phenomena and refine our findings.

Initial data analysis: After we transcribed the interviews, we started our initial analysis with open coding using the Atlas.ti software. Parts of the text were selected and assigned an open code in the software. We used the review of the codes and relevant categories along with other sources to further analyse our data and arrive to higher level findings. Once the first codes emerged, we checked the results against the current literature to sharpen our coding scheme. After there were no new codes emerging from the data, we switched to the process of axial coding (Corbin and Strauss, 1990). The coding was refined throughout the process and had an iterative character as we went back to original data to refine our initial findings. For example, the codes of emotional support and networking with other patients led to higher categories of informal knowledge and informal communication, which ultimately lead to the theme of favouring experiential knowledge. Based on the coding of interviews, observations of posts in the communities and informal observations (online messages exchanged with patients; offline encounters with interviewees), we arrived to our initial themes presented in the following section.

4 Preliminary findings

We arrive at the five preliminary themes that indicate how patients develop *social media logic* and how this affects *clinical logic* in their interactions with healthcare professionals..

Patients value being connected as part of social media logic: *Social media logic* enables patients to establish connections with their peers, but they also feel connected to the world at large. From a number of the interviews, a strong need to feel connected to others emerges, and this is reflected in the many contacts with others they have for a range of issues discussed on the platform. This is driven by their need to feel that others are in similar position and they are not isolated with their condition. This is more evident in the brain injury group in which a number of interviewees made very explicit as a need to “feel valued and connected” as illustrated in the following quote: “*I was quite happy to have that I could do a lot on Facebook and we got connected in that way. For me social media, it is so much easier to find right people for me*”.

Interestingly enough, this feeling of being connected also leads to an increase in patients’ offline interactions, which, in the brain injury case, also resulted in establishing a joint sports group in which patients regularly meet to exercise together and thus feel better connected to each other. Diabetes patients also value being able to connect with the people in a similar position. Sometimes, they too expressed the need to be connected and that this can be fulfilled through social media, along with the informational support they receive.

Patients appreciate social media logic to safely share information they keep silent about in their communication with doctors: *Social media logic* provides an opportunity to patients to safely share information. It is in close connection with feeling valued and connected. Patients, in particular from the brain injury platform, feel that the platform is a place where they can share their fears and experiences in a safe way. This feeling of safety is stronger on the online platform than in the offline process with their doctors. They feel understood by their peers, get an emotional support and feel valued. Whereas sharing such stories is hard with their family members and doctors, they appreciate the safety and privacy that the group provides. Patients feel they can share difficulties they experience in a way which makes feel them safe. In addition, this kind of safe heaven helps them to better face the difficulties they experience in explaining and communicating issues surrounding their health condition in a more empowered way not only to doctors, but also to their families and friends. *“Putting that story there is very safe because it is a closed community so it is very safe. There should only be people who are victims, who have brain damage, so they understand what happened. A lot of them recognize because it happened to them too and yea, this is very safe and we can talk about stuff like that”*.

Social media logic favours experiential knowledge: *Social media logic* features a strong distinction between experiential and expert knowledge. In particular, this is present in the diabetes platform and is used as justification for why patients substitute some of what they do with their doctors with use of the social media platform. In particular, they tend to value the knowledge of their fellow sufferers more than the knowledge of doctors. When asked to explain why they believe and rely on their peers so much, diabetes patients emphasized the fact that their doctors do not have diabetes and their peers do. Thus, if something worked for their peers, it will work for them, and the experiential knowledge they have is more reliable than the doctor’s expert knowledge that is mainly based on books. This is most notable for the topic of the diet that the official medical establishment suggests compared to the one that members of the diabetes forum promote. Forum members promote a low carbohydrate, high fat diet as being good for diabetics, but this kind of diet is not officially promoted by healthcare professionals through *clinical logic*. Quite the opposite, doctors promote a low fat, high carbohydrate diet, which, according to the interviewees, does not work well for diabetes patients. This is well reflected in the quote of one diabetes interviewee who did not listen to the advice of her doctor to take certain pills, but rather to her peers on the forum, even though she had only used the forum a few times: *“Because it was recommended by the people with diabetes, and it had worked for them. So, that’s why. General practitioners, you know they don’t have the illness and they do not feel it”*. Furthermore, another interviewee’s quote provides even better reflection of this: *“Personal experiences exceeds book knowledge”*. One doctor who we interviewed on the Diabetes forum actually joined the forum for this reason as he had the patient who successfully tried the diet. As a result of his learning about practical effects of the low-carb high-fat diet and its benefits for those patients, he invited some patients to participate in a controlled trial, which exposed patients to such food. Results of his study were positive indicating that the low-carb diet worked efficiently for the patients. This not only changed his attitude, but he has also published a scientific article showing the benefits of the diet and also called for the change in attitude of healthcare professionals in valuing experiential knowledge and use of social media.

Social media logic empowers patients in relation with general practitioners who follow clinical logic: *Social media logic* allows patients to build knowledge on their conditions and patients feel that this makes them more equal in the relationship with their doctors. In particular, they feel they are at the same knowledge level as their general practitioners on certain aspects of their specific condition. They sometimes ask their doctor additional questions because of what they have learned on the social media platform, and they even question the decisions of their doctors. In this way, they in particular

challenge the dominant role of doctor, which is featured by *clinical logic*. This is in particular case for the brain injury patients and their relationship with their rehabilitation coaches and general practitioners. The way patients feel confident and empowered in the relationship with them is illustrated by the following quote: “*The social media network gives us that confidence, then we do speak out more frequently*”. On the other hand, diabetes patients do not always exercise their feeling of empowerment openly when they meet their general practitioner and they sometimes simply keep silent about their social media activities, but still have the feeling that they are more equal to their doctors. In this way, *social media logic* and *clinical logic* do not confront openly and keep to coexist for the patients, as illustrated by the following quote: “*I am following the conclusions that I come to myself with the advice from the forum and I just go and see my diet nurse every six months to confirm that everything is as it should be*”. However, when it comes to the specialist doctors, this situation seems to be different and the patients do not challenge the *clinical logic* exercised by specialists’ authority. They rather complement it with their *social media logic* as illustrated in the following quote: “*I’ll tell you a little secret about GP’s, they are good for two things: one is to write you a prescription and the second is to refer you to a specialist doctor who knows what is going on about*”.

Patients rely on social media logic to substitute or complement face-to-face doctor-patient interactions: *Social media logic* allows patients to substitute or complement the healthcare provision they receive from their doctors. In particular, they rely on each other to answer different types of questions on how to manage different aspects of their condition. For brain injury patients, this is more evident for the relationship with their general practitioners than with the specialists, just as is the case for empowerment. Moreover, these patients first ask their peers online and do not call their general practitioners or rehabilitation coaches. For example, they ask how to continue with their treatments or how to self-manage some aspects of their condition. In this way, they avoid consulting their doctors or other healthcare professionals to get their questions answered, in particular for less serious issues they can resolve through the help of each other. In particular, they emphasize the value and support they get from their peers online, thus substituting doctor’s role and *clinical logic* for less serious issues. As reflected in one of the interview quotes, they contact their doctors only when the issues is serious and cannot be solved with the help of online peers. “*You are going to social media first to ask is it necessary and what do you guys think. It depends on the seriousness of the issue you have*”.

For diabetes patients, this substitution of offline healthcare provision is a complete substitute of the role of their general practitioner and sometimes of the diabetes specialists. Although they do still go to their regular check-ups every six months, they tend to resolve their health issues, in particular their diet by relying on *social media logic* through the experiences and advice of their peers. They discuss dietary issues in much details and rely on the forum for information. In this way, they avoid *clinical logic* in relationship with their diabetic nurse or general practitioner as illustrated in the following quote: “*In other words, she (diabetic nurse) is at the end of the process rather than at the beginning, it should not be that way, I know, but it is*”. However, the situation with specialist is different and patients emphasize a distinction and value specialists as they tend to be more knowledgeable as illustrated by the following quote: “*With the specialist it is much more difficult to argue or to go against. In the end, because they have much higher education and smarter*”.

5 Initial Discussion and Further Steps

The findings so far allow us to provide initial answer and discussion on how *social media logic* develops and how it interconnects with the *clinical logic*. Firstly, we identify three themes shedding more light on how *social media logic* is developed. These are a strong need to be connected, safely share information and rely on experiential knowledge as determinants on how patients develop this new logic. Yet, it is surprising is that we observed differences in *social media logic* between two online communities. Whereas patients in the brain injury community value a safe and closed environment with a limited number of users, the diabetes patients rely on a large number of peers and an open community.

This may point to a different role of social media affordances (Treem and Leonardi, 2012), in particular visibility and association. The brain injury patients favour limited visibility as a closed group, which actually determines the social media logic being promoted in their community. On the other hand, diabetes patients have an open community where non-registered users can also see posts. The same applies for the association. The brain injury patients community place a high value on the association as an affordance of social media to establish between individuals even offline. On the other hand, association with individuals is not especially emphasized in the diabetes community, but rather the association with the content in the community. Thus, development of *social media logic* may be affecting patient's circles of offline support, which could be a topic of future research. These differences on social media affordances also suggest how *social media logic* may slightly differ to the type of online community and have effect on interplay with *clinical logic*. In other words, the social media platforms may have impact on how patients develop and exercise *social media logic*. This points to the interplay between technology and human actors (Bélanger et al. 2014) and thus requires further analysis for our case.

In regards to the question on how *social media logic* interconnects with *clinical logic*, we draw on our preliminary findings on the empowerment and the substitute of the offline healthcare provision. To certain extent, these point to confrontation between *social media logic* and *clinical logic* of the healthcare provision. In particular, new behaviours of patients who are empowered challenge the traditional *clinical logic* that is characterized by doctors as dominant and leading actors in the healthcare process. Whereas some of the earlier research confirmed that patients get empowered in their communication with doctors (Broom, 2005), we find that patients make a distinction. They either challenge their doctors showing their empowerment openly or remain silent, but feel empowered. Hence, an interesting finding is that many patients rely on silent empowerment and so their offline healthcare provision and the relationship with doctors may still seem as traditional *clinical logic* although they develop and act based on *social media logic*. This shows that *social media logic* and *clinical logic* can co-exist for certain period of time (Lounsbury, 2007; Marquis and Lounsbury, 2007; Reay and Hinings, 2005). Furthermore, both for the empowerment and substitute vs. complement, we have observed differences between general practitioners and specialists. In particular, patients in both communities tend to be more empowered and substitute the services of general practitioners. Reason behind it is the knowledge the patients build online between each other. However, the situation with specialists is different and *social media logic* seems to complement *clinical logic* by having more knowledgeable patients, but yet having more respect for specialist and adhering to *clinical logic* in the relationship with specialists. This points to the importance of knowledge in healthcare institutional environment (Currie and Suhomlinova, 2006).

Overall, we introduce a new *social media logic* in healthcare and provide preliminary findings on how this new logic develops and how it interconnects with *clinical logic*. Although we arrive at interesting preliminary findings and provide initial discussion of the findings, this requires further exploration and analysis. Therefore, we plan to collect and analyse data from the platform features, platform managers, more patients and doctors. In regards to doctors, we will attempt to interview both general practitioners and specialists as our results point an important difference from the patient's perspective. This will enable us to propose a model on the intersection of social media logic and clinical logic in healthcare. In our current research, we also note several limitations. First of all, our current research is limited to small sample of participants and types of social media, thus we can not make any claims on statistical generalization of our findings. The research at this point does not contain data from interviews with doctors, which would provide a better picture how doctors experience the emergence of *social media logic* and its effect on *clinical logic*. Furthermore, we acknowledge that quality of health social media is very diverse (Sillence et al. 2007). Although this issue is beyond the scope of our current research, it may be a factor that influences the development of *social media logic*.

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