The Role of Power and Materiality in Healthcare Improvement Initiatives: A Strategy-as-practice Perspective

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Abstract:	In this paper we examine a healthcare initiative aimed at improving coordination for children with complex care needs. We adopt a strategy-as-practice lens. We focus on how power and materiality emerge and play an active role in everyday strategizing practices and in so doing we highlight the agentic role of material artifacts – a relatively overlooked topic in prior research. We found that material artifacts gain power in their own right and can promote changes in healthcare practices, thereby improving the quality of healthcare delivery.

Dear Associate Editor and Track Chairs:

We went thoughtfully through the very constructive and helpful reviews and have amended our paper accordingly. The following table synthesizes our edits with respect to the AE's and reviewers' feedback.

We believe that we were able to answer the most relevant and substantial comments of all three reviewers and have edited the manuscript accordingly. We would like to thank all reviewers and the associate editor for their very constructive feedback.

All the best

The Authors

AE's comments	**Rework**
I will trust the authors to take advantage of these excellent reviews as they further consider how to publish this case in various outlets. Here I will confine my advice to what I think is feasible to accomplish in a revision for ICIS and is in keeping with the 14 page limit.	We thank the review team for their helpful advice and believe we have been able to respond to the issues raised within the 16 pages allowed
First, a transformation to the type of paper Reviewer 1 recommends (cheat sheet as part of an information ecosystem) is, I believe, too substantial for the one minor revision cycle of ICIS. I agree this would be an interesting paper to write, but a paper with this focus would need to be well grounded in the literature on boundary objects, multidisciplinary knowledge sharing & medical/clinical interpretations, and design of these artifacts (e.g., as standardized forms or not), and would require a substantial revision to the current paper. Thus I suggest you put that idea on hold for a future analysis. Please see below some literature that might be useful for a future paper along these lines.	Thank you for your understanding. We very much agree that Reviewer 1 provides some very interesting insights, which we can use in a further development of the study for submission elsewhere. The literature suggestions are very helpful.
Second, along with Reviewer 2, I think you need to streamline and focus. I too was confused from the introduction through the literature review and the analysis what "knowledge" you were referring to, what "strategy," and what "practices." Why the discussion of knowledge as object vs. in practice, for instance? How many "something-in-practice" do you need here? What level of 'strategy' are we talking about -- Is this the strategies-in-practice of parents getting help for their kids, or clinicians preserving their organizational autonomy or CEOs promoting	This is another excellent point. Thank you. We have narrowed the focus in line with this suggestion. We provided just a few references about the practice perspective of knowledge (e.g., Cook and Brown) and we made both the introduction and the literature review more focused on strategy-as-practice. Moreover, we removed the theory of resistances and accommodations (Pickering) but kept some some details

their own hospitals? Then we have power and resistance and discourse and discursive practices. How much of all this do you really need in this one 14 page paper? If you can focus, streamline, get into a bit more depth in essential areas and eliminate distractions, I think the paper will be tighter and more interesting for presentation at ICIS. For instance, if the main story is how organizational change happened as a result of different actors' strategies-in-practice, how critical is delving into care-giving "knowledge in practice"? "Knowledge in practice" implies to me you will delve deeply in to the divergent worldviews of the specialists, parents, and administrators to understand where knowledge boundaries presented and were addressed. Again, this is a huge literature that you have not touched on, and you have ignored the medical literature on these knowledge differences.	about Latour's translation model, as we refer to this in the discussion. We now develop on power and materiality. Because we dropped the "knowledge in practice" issue, we will not delve into the (medical) literature on knowledge differences. In this paper we limit the discussion of knowledge insofar it is embedded in the "cheat-sheet" and is shared across the healthcare network to improve coordination.
Following Reviewer 2's suggestion to "step back", I suggest you first look at your title: "Health Information Systems: Power Considerations in Facilitating Knowledge Sharing and Coordination". This is so generic and covers such a wide array of possible topics it's not surprising that the reviewers and I lost our way. Therefore, a first task is to decide on a new, more focused title, which includes the one or two key concepts that you will streamline around. This could be the various stakeholders' strategies-in-practice that together brought about the organizational and practice changes associated with the pilot, for instance.	As we decided to revolve the paper around the strategy-as-practice theory, we have revised the title accordingly. The new title reads as follows: "The Role of Power and Materiality in Healthcare Improvement Initiatives: A Strategy-as-practice Perspective". We opted for this title because it reflects both the strategic perspective taken (strategy-as-practice) and the prominent role of power in strategizing in practice. Moreover, we emphasize the key role of material agency since we now specifically attempt to fill a gap in the strategy-as-practice literature that is related to the relatively little attention of the role of material artifacts (seen as having agency).
The second task is to figure out which of the many contributions you could make from the case that that you want to deliver on from this one ICIS paper.	As indicated, our main contribution is now related to the role of power and materiality in strategizing practices. We trust that this is much clearer from the amendments we have made. We are really grateful to have been told to focus the paper much more and believe that the paper has improved enormously as a result.
Third, remove concepts and discussion not essential to making these contributions in this paper and tighten up the structure of the paper from intro through literature, analysis, and discussion.	These have been removed in line with our responses above.
Fourth, with the pages saved doing this clarify the	We have now provided further details in

methodological questions Reviewer 2 raises and explain briefly the cheat sheet (in ways that support your new focus). Method question (rev. 2): In the methods, it takes much too long to see who was interviewed and observed. That information needs to be mentioned much earlier in the methods. Without it, the reader is wondering if patients or providers/employees were the participants for too long which is distracting.	the method section, in line with reviewer 2's comments.
These were two things I also noted. You said your observation and interview time spanned 2010-2014, but your data covers 2008-2015. Please explain/clarify. The practices in Table 2 seem somewhat random, e.g., "stories and anecdotes" vs. "passion and emotions included in stories" – are these separate practices? How are "powerpoint presentations" a practice different from "formal meetings with speeches" which might include powerpoint presentations? Is it essential to include 'discursive practices' and if so, can you clarify/clean up this list?	We have amended the point related to the fieldwork timeline (2010-2015) and have removed Table 2. In doing so we hope to have made the findings section narrower and sharper.

Reviewers' comments

Reviewer 1	**Rework**
My main critic of the paper is that the cheat sheet - and its informational 'ecosystem' - should be described and analysed further. Make more of a point out of it! Its an excellent example of both a boundry object (i.e. in the academic discourse) and an information /IS product, or component (i.e. the (health) IS discourse). To me it is an opportunity lost, not to make more out of it in a paper for an IS conference!	Thank you very much for this suggestion. We have emphasized this point in the revision for ICIS but we also aim to undertake a more substantial revision for submission elsewhere, in line with the AE's advice.
Describe the Cheat sheet and how it came about: now you say that the coordinating nurses is 'using' it, is s/he updating it? from what source? Many health services and medical specialities are involved; are the sheet updated based on information from any of the multiple IS in the hospital, or only by communicating personally with the different specialist doctors /nurses? Please give a short description. You say that the Cheat sheet was suggested by a parent and further developed by physicians and nurses; How did they do that? I assume the sheet must include some categories, standards for describing various conditions and services rendered:	Unfortunately we did not obtain clearance to incorporate a template of the cheat-sheet into the paper, so we were specific insofar we were also compliant with the NDA (non disclosure agreement) signed with the hospital. The cheat-sheet at Dooly Hospital is unique and we are concerned not to reveal the identity of the hospital.

Such standardisation efforts are generally a complex task. It would be interesting to learn about the process, and in particular, what kind of description is included in the sheet. The dilemma for such a sheet, as I see it, is that if it is not (or more or less) standardised, only a (more or less) free text description, it would be difficult to scale the project. This would be interesting to learn about.	
You write, page 10, just before 'Analysis' that the are many pilots in Canada and it is difficult to turn them into programs (permanent funding). Important in sustaining pilots is to scale them from small individual limited projects, to more sites / higher impact. This is a good angle for discussing the Cheat sheet and other findings; how can the project and approach be scaled up? For example; if very context bound (or standardised to the original context's need) it might be difficult to scale, and contrary, if it is too loose, only free text, then its only a good idea and maybe difficult to scale (because maybe it will be too dependent of the individual participants? Or maybe not, because the needs for coordination in such cases are so great?)	The ability of the particular cheat-sheet developed at the Hospital to become "scalable" is related to the Hospital's network. The scalability of the cheat-sheet is currently limited because of its paper-based nature and because the updates need to be undertaken manually. As a result, we did not discuss how far the cheat-sheet could represent a model that can be adopted in other settings. Nevertheless, its implementation in different settings should not be an issue if we refer to the cheat-sheet as a material and conceptual artifact that enables change. In the revised version of the paper we tried to be clear on this point, as we focused the discussion around the relevance of power and material agents in bottom-up strategizing – using the lens of strategy-as-practice.
You write that some argue that the pilot is not so interesting because of the small number of children, 20. Then you write that the second phase got funding to double the number, 20 more. Interesting in a scaling perspective would be if the cost also doubled, or could the one nurse still perform the whole coordination? Or was it necessary to allocate an additional nurse? The cost and feasibility of scaling the project (and funding) are important aspects for the resistance by some actors, as I understand ti - so should also be discussed in that aspect.	The pilot project was able to enroll ~20 additional children with complex care needs once a second nurse and three physicians (one full time and two part time) were hired. We do not have financial details about the resources employed in the first and second phase (20 and 40 children); however, the interviews reveal that the costs incurred in the second phase of the pilot were less than doubled.
I suggest 1) relate boundary objects to discourse /knowledge sharing in the literature section 2) add description of the various aspects of the Cheat sheet as mentioned above, and 3) add analysis and discussion of these aspects of the Cheat sheet as boundary object and in the perspective of scaling.	Thank you for these suggestions. We took on board as much as we could, given the short time allowed to revise the paper and the space constraints, in line with the AE's advice.

Reviewer 2	Rework
1. The first part of the paper is hard to get through because the paper jumps from setting the stage for the role of IS in knowledge sharing in urgent/emergency care contexts to ambulatory care issues, then back to urgent care considerations. Please state upfront if the paper is focused on one or the other or both (or all) types of medical contexts to help the reader understand where this work is positioned.	We take your point. The focus of the paper is now on how strategy-as-practice can be used as a helpful lens to shed light on strategic changes undertaken in networked healthcare settings. We have hopefully made this clearer. We did so by rewriting the introduction section and by narrowing and sharpening the literature review. We now focus on the role of power and materiality in strategizing practices involving change in healthcare settings.
There is a lot going on conceptually in the first 4 paragraphs of the paper. The 1st sentence of the 4th paragraph introduces a seemingly unnecessary term in an already crowded introduction. "knowledge negotiation" Consider revising this to sharpen the focus for the readers.	Thanks for this important advice. In line with your comment and the above, we have undertaken a major rewrite of the introduction.
In the methods, it takes much too long to see who was interviewed and observed. That information needs to be mentioned much earlier in the methods. Without it, the reader is wondering if patients or providers/employees were the participants for too long which is distracting.	We substantially revised this section and have put forward some key pieces of information regarding the participants in our study. Thanks for pointing this out.
The study time period (2010-2014) seems long to have only conducted 43 interviews. Please address this issue in the methods. I know there were also observations occurring during this time, but this still needs to be addressed. What was happening when interviews and observations were not occurring? Or how did the researcher(s) decided when in those years to collect data (interview and observe people)? These kinds of details would help clarify the methods section.	We have now provided these details and trust that the methods section is now much clearer.
It is not clear why the study was divided into two phases? I understand that new money was injected and thus new subjects were enrolled, but was there anything else that different about phase two? The argument for doing that needs to be made clear and also the impact on the findings. It's not clear if the findings from phase one and phase two are similar, different, consistent, inconsistent, etc.	We have substantially reviewed this part. Fieldwork was conducted in four stages, to capture longitudinal data (e.g., changes). This is why some interviews were repeated. The presentation of the findings is broken down into three parts. The first describes the genesis of the project (idea/bid) – data was collected retrospectively. The second focuses on the initial phase of the pilot. The third involves additional resources injected in the project (financial resources and staff).
By the conclusions section, it is clear that the paper needs more streamlining from a conceptual standpoint. As it currently reads, the paper	We agree. Thank you. We have now narrowed down the focus by concentrating on the contributions

introduces too many theories and concepts and for this reason ends up only lightly touching on each of them as opposed to going more deeply into a few very important ones. I'd urge the author(s) to take a step back and think about which concepts could be enfolded into others or removed. This would improve the readability of the paper, sharpen the focus and strengthen the contribution to the literature.	associated with how far power and material agency contribute to pursue change in networked healthcare contexts. This focus has helped us to generalize our findings (at least from a theoretical perspective, given our qualitative approach) as we argue for the need to account for the powerful role of material agency in networked contexts (not necessarily healthcare based).
How might the observations made in this children's hospital setting be applied to other health care IS contexts or other non-health care contexts?	See our point above – the paper revolves around the relevance of power discourses and materiality (the former considered as a change agent). Thus, our conclusions can be applied to a variety of settings and our contribution/focus is clearer. Thanks again for your helpful advice.

The Role of Power and Materiality in Healthcare Improvement Initiatives: A Strategy-as-practice Perspective

Completed Research Paper

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Abstract

In this paper we examine a healthcare initiative aimed at improving coordination for children with complex care needs. We adopt a strategy-as-practice lens. We focus on how power and materiality emerge and play an active role in everyday strategizing practices and in so doing we highlight the agentic role of material artifacts – a relatively overlooked topic in prior research. We found that material artifacts gain power in their own right and can promote changes in healthcare practices, thereby improving the quality of healthcare delivery.

Keywords: Strategy-as-practice; power; materiality; healthcare coordination.

Introduction

Working collaboratively is key in many healthcare settings. Yet collaboration can be challenging when health workers from various specializations, having different backgrounds, knowledge and approaches to problem solving, are nevertheless required to coordinate their practices in assisting and supporting patients, families, carers, and communities (Gittel et al., 2013, WHO, 2010). A key component of healthcare coordination involves the ability of those involved in these practices to share knowledge (Kimble et al., 2010). Impediments to knowledge sharing can harm patients' health in emergency situations, increase costs, and inhibit diagnoses and the administration of proper care (Shannon, 2012). Information systems (IS) are seen to be key in helping to manage knowledge in healthcare settings and are aimed at ensuring quality service delivery (Davidson et al., 2015; Shannon, 2012), faster treatment for severely ill patients who need speedy diagnoses such as in life-threatening situations in ER (Kaelber and Bates, 2007), and improved coordination when patients have multiple diseases that require the intervention of different specialists (Abraham and Reddy, 2008). In this context, we here examine an initiative (a pilot project) aimed at improving knowledge sharing and coordination practices within a healthcare network involving a Hospital (Dooly) and several external agencies, such as social and psychological services.

Theoretically, we draw from the strategy-as-practice literature (Jarzabkowski, 2005; Whittington, 1996; 2006; 2014), which focuses on how *practitioners* (organizational actors) enact strategy. Strategy-as-practice is a relatively recent approach, which, in the last decade, has attracted the attention of a number of scholars from fields such as strategy, organizational behavior, theory and design, and, latterly, information systems (IS) – see for instance the 2014 Special Issue on Strategy as Practice that appeared in *The Journal of Strategic Information Systems* (Peppard et al., 2014). The main point made by strategy-as-practice scholars is that strategy is not always planned, *then* executed (as in, e.g., Porter, 1991). Instead, it is rather seen as an emergent unfolding of everyday practices produced and reproduced through social interactions (Whittington, 2006). The strategy-as-practice approach, therefore, represents a shift "from traditional concepts of strategy as something an organization *has* to something that people *do*" (Jarzabkowski et al. 2013, p. 42 emphasis added).

The strategy-as-practice approach is relevant to the health-IS domain because healthcare initiatives are strategic, particularly those involving changes aimed at improving the efficacy of healthcare service delivery (Currie and White, 2012; Kimble et al., 2010) – yet such changes can be very challenging (Scarbrough et al., 2014). Moreover, using the strategy-as-practice lens allows us to focus on two key themes associated with strategic changes. The first relates to the role of power and politics: several strategy-as-practice papers have highlighted the strategic relevance of discursive practices associated with change (Mantere and Vaara, 2008; Spee and Jarzabkowski, 2011; Vaara, 2010). For instance, Varra and Tienari (2002) seek to understand how individuals use power to mobilize particular discourses (using narrative, rhetoric and legitimization processes) to achieve strategic aims (Hardy et al., 2000). The second relates to the role of materiality. The strategy-as-practice approach stems from the practice perspective (Orlikowski, 2000; Schatzki et al., 2001) and necessarily accounts for material agents (Feldman and Orlikowski, 2011), including IT artifacts as well as physical and conceptual objects such as a desk or a strategic framework. However, the strategy-as-practice literature that focuses on how far materiality affects everyday strategizing is not well developed (Vaara and Whittington, 2012). Indeed, other than a few notable exceptions (including a recent special issue on materiality and strategy-as-practice appearing in the *British Journal of Management*, 2015), materiality has been weakly theorized by strategy-as-practice scholars. In particular, the current strategy-as-practice literature often treats materiality as a mere "tool", without acknowledging its agentic role (Leonardi, 2012; Orlikowski, 2007). In other words, according to the practice perspective, materiality has agency, yet the strategy-as-practice literature sees the material as a tool/object, not something that "does stuff" in its own right. Thus, in this paper, we examine a healthcare initiative aimed at changing practices to improve coordination and we do so by focusing on how various material agents along with power discourses play an active role in promoting strategic change. Accordingly, we address the following research question: *How do discursive power and materiality emerge and play an active role in everyday strategizing practices?*

We address our research question using qualitative, longitudinal fieldwork that was undertaken in Canada during the period 2010-2015. Dooly hospital, in 2010, in collaboration with various local agencies, started a pilot project aimed at improving healthcare coordination and knowledge sharing processes with the over-arching objective to improve healthcare service delivery for children with multiple life-threatening diseases. Our results show how power and materiality played a role in the strategizing to improve the coordination of care across the hospital's network, thereby achieving strategic objectives.

The remainder of this paper is structured as follows: we begin with a review of the literature on strategy-as-practice, focused on power and materiality issues. We go on to outline our method, and then present and analyze our findings before discussing them in light of prior literature. We conclude the paper with a consideration of the implications of our study – for theory and practice.

Strategy-as-Practice, Power, and Materiality

Strategy has often been conceptualized as a grand vision, which is formally planned by the top executive team and then executed by others lower down in the management hierarchy (e.g., Prahalad and Hamel, 1994). Perhaps the best-known variant of this approach to strategy is presented by Michael Porter (e.g., Porter, 1991). Porter discusses how to identify an attractive market (based on his "five forces" model) and then, what strategy to adopt to be successful within this market – both choices (what market and how to be successful in that market) based on pre-action planning. While planning by a top executive team may be important to study, the strategy-as-practice perspective asks us to recognize that strategy is a much

more messy process than this, and suggests that instead of focusing on the planning of the top executive team, we can learn more from looking at the everyday practices of the range of stakeholders (practitioners) involved in the context of interest. From a strategy-as-practice perspective, strategy is studied as an emergent process (formation and execution) with echoes of Mintzberg (Mintzberg and Waters, 1990), where strategy is constantly unfolding in the flow of practices as they are undertaken by practitioners (e.g., Jarzabkowski, 2004; Whittington, 2006).

Power as an Element of Strategizing in Practice

In every organizational setting power is a relevant construct to consider, as certain actors will have more power than others (Pfeffer, 1981). Power is traditionally seen as a resource that can be used by "powerful" individuals to achieve (often personal) objectives (Dahl, 1957; Emerson, 1962; Hunter, 1963; Pfeffer and Salancik, 1974). As Hardy (1996) notes, however, this view of power is quite limiting in that it requires constant deployment of resources such as political access, expertise, status, credibility, and prestige (Levina, 2005). Punishment is given to those who do not comply, and for those who do, the reward is generally financial, career advancement, and/or (more) power. More importantly, this type of power might have little impact on durable changes, "since it is task oriented and the continual deployment of either the carrot or stick may be necessary" (Hardy, 1996, p. S7). Power often involves more complex processes that are associated, for instance, with the accessibility of decision-making processes. An example would be the exclusion of some from a decision, as when a steering committee holds a meeting when certain 'dissenters' cannot attend. Other more subtle ways to enact power involve powerful individuals' effort to make others believe things in order for the former to take a particular action (Pettigrew, 1979). Here, as Hardy (1996) explains, a context is created that legitimizes certain decisions, making them 'acceptable' even to those who are disadvantaged. In this case, power avoids conflicts. Power resides also in values, cultures, symbols, and meanings that individuals give to particular organizational settings (Foucault, 1982; Vaara and Whittington, 2012).

It is clear from the above that viewing power simply as a resource that can be leveraged as needed does not reflect the complexity of the construct (Dhillon, 2004; Levina, 2005; Swan and Scarbrough, 2005). In this paper, we account for power as enacted through everyday practices, which is consistent with the strategy-as-practice perspective. Latour (1986) provides a good example of how power emerges through practice. He uses the metaphor of the 'token' to make the point that power can be seen as a set of mandatory orders but can also be seen as a way to empower individuals, through practice. For Latour, an order, a claim or an artifact (described as a token) is proposed by a powerful individual (or group), and the token, according to the inertia principle, will move in the direction given by the powerful actor as long as there are no obstacles (e.g., frictions or resistances). In this exercise of power (the 'diffusion' model according to Latour), the order (or the token) does not need to be explained, and the greater the strength with which the token is delivered, the more the token will travel and overcome resistances. However, ultimately, the token will encounter resistance and this will slow down the order's pace of impact so that the original force (power) is reduced. In contrast, power can be seen as performative, and this relates to the idea that the spread of the token "is in the hands of people" (Latour, 1986, p. 267). Its displacement is not caused by the initial impetus, since the token here has no impetus; instead, it is the energy given to the token by people, who keep it going. In this context, the token is not a 'mandatory' order, but is something that people reshape, by "modifying it, or deflecting it, or betraying it, or adding to it, or appropriating it" (p. 267). This way to conceive power involves what Latour calls a 'translation' model (in contrast to the previous 'diffusion' model), since power undergoes social processes where the order is negotiated, rather than 'executed' (or spread). In line with the perspective taken in this paper, the recent strategy-as-practice literature (Peppard et al., 2014; Varra and Whittington, 2012; Huang et al., 2014, 2015) highlights that power should be seen as immanent in everyday strategizing, in practice. The strategy-as-practice perspective focuses on how social practices unfold along with power dynamics, as part of the ongoing fabric of social life (Foucault, 1977; Vaara and Whittington, 2012), and spread within an organization, or even across networks. Importantly, these social practices include discursive practices that play a significant role in making changes durable, despite resistance. In healthcare contexts, resistance may come from doctors who are not willing to share their knowledge about patients (Nicolini et al., 2008) even while management promote such sharing processes to improve healthcare delivery (Scarbrough et al., 2014). These power-related practices involve "things" as well as humans – materiality - as we explain next.

Materiality and its agentic role

The majority of the strategy-as-practice literature that considers the role of material agency in everyday strategizing focuses on "strategic tools" (Burgi et al., 2005; Molloy and Whittington, 2005; Spee and Jarzabkowski, 2009). Such tools generally refer to very common office entities (a desk, a computer, post-its, block notes, etc. – see Jarzabkowski et al., 2013) as well as more sophisticated entities such as Powerpoint presentations (Kaplan, 2011) or other visual tools (e.g., pictures, videos) that are used to deliver ideas but that can also incorporate a symbolic value (Paroutis et al., 2015). Strategists (generally executives) are often observed during steering committee meetings, workshops and the like, using a variety of tools either to facilitate others' understanding of their (strategic) ideas, to promote collaboration and knowledge sharing, or to support their own (strategic) claims, attempting to execute their own agenda – sometimes at the expense of others (Hardy, 1996; Pettigrew, 1979). Examples of tools used in a "constructive" way are considered in Paroutis et al. (2015), who discuss "tools in use" and show how strategic maps can be adopted in top management team meetings to produce knowledge around strategic issues. Likewise, Belmondo and Sargis-Roussel (2015) show how tools, such as a word document, become strategic objects when they are enacted to promote a shared meaning of strategy. For instance the same Word document can be printed in multiple copies and circulated to other executives as the basis for a collective discussion. Strategic tools used in a more subtle way are described, for instance, in a study by Kaplan (2011), who notes that Powerpoint presentations can be used to produce and validate knowledge between managers – this way bridging different epistemic cultures (Knorr-Cetina, 1997); alternatively, the same presentations can be used (subtly) to set boundaries. As an example, Kaplan (2011) discusses different affordances of materiality and shows the cartographic effects of these IT tools that can set boundaries around the scope of a strategy, certifying some ideas at the expense of others.

These papers are helpful to understand how strategists can use materiality for strategic purposes. However, most include little or no theoretical development of the materiality concept, nor do they acknowledge its "plasticity" – for instance, materiality is subject to various interpretations that lead to different ways (or different affordances) to enact it. Other scholars discuss different types of strategic tools that have a more "physical" materiality than visual/presentation tools, and take materiality theorizing further, especially in terms of its subjectivity. For instance, Burgi et al. (2005) show how Lego bricks can be used to socially construct meanings around strategy, through discursive interactions at the top management level. In so doing they build a model that illustrates how strategy-exploration processes (cf., Mintzberg, 1987) develop over time through physical, psychological and sociological activities. Heracleous and Jakobs (2008), similarly, show how executives make sense of strategy (collectively) by working on a set of miniature sculptures representing animals (strategists) and various challenges and achievements (large stones, walls, and food and water). These material tools are helpful to discuss individual frames around strategic ideas and to negotiate different views.

A common denominator of the above approaches relates to the philosophical positioning of the strategy-as-practice literature with respect to materiality. Whether the focus is on strategic tools, boundary objects, IT artifacts, or even more "intangible" agents such as a business plan or a report, materiality is conceptualized as pre-existent, but more importantly, constantly available to strategists. As a consequence, the emergent nature of material agency is neglected.. However, very few papers bring this issue to the surface. One notable exception is Dameron et al. (2015). In their editorial for the 2015 *BJM* Special Issue on strategy-as-practice and materiality, they attempt to conceptualize materiality by breaking it down into three "types": strategic tools, strategic objects and artifacts, and strategic technologies. Strategic tools, they argue, are formalized ways to approach strategy analysis and decision-making (e.g., SWOT analyses). These tools are selected by strategists for specific reasons involving legitimization/delegitimization processes. For instance, the sales VP might decide to create a SWOT analysis associated with a specific product, relating it to growing sales during the past year, in order to legitimize a request to increase the sales budget for hiring new salespeople. Once the tool is discussed in practice, its materiality *emerges*. Strategic objects and artifacts are what Whittington (2007) calls "stuff of strategy" (p. 1579). These objects, like Lego bricks (Burgi et al., 2005) and similar to strategic tools, are not "inherently meaningful. Rather, they are made meaningful through social interaction such as strategizing" (Dameron et al., 2015, p. S3). Strategic technologies include hardware and software. Like strategic tools, a Powerpoint presentation can be used to clarify strategic ideas as well as to hide details;

for instance, "the bullet points given preference to by PowerPoint software lend themselves to overviews rather than detailed descriptions or explanations" (Dameron et al., 2015, p. S4).

Another attempt to theorize materiality is provided by Demir (2015) who focuses on the concept of affordance (Gibson, 1977; Leonardi, 2011). By analyzing everyday strategizing practices observed in three financial institutions, Demir demonstrates that affordances appear in bundles, which include sometimes conflicting interpretations of the same materiality. Bundled affordances, Demir argues, are strategically "effective" (they help in creating a shared understanding of ideas) when the features of a particular material object are familiar to those involved. This echoes the idea that material agents are better appropriated once a certain stock of prior related knowledge is present (Marabelli and Newell, 2014). Jarzabkowski and Kaplan (2015) further emphasize the role of affordances, which, they argue, occurs through a three-phase process. First, there is a selection process, where strategists decide what strategic tools they want to use. Second, the tools are applied (in practice), and there is a multitude of ways in which this can occur, depending on the particular affordances that emerge. Third, outcomes are evaluated and, if positive, the same material tools are re-selected for future strategizing practices. Their analysis of the banking industry is illustrative of the ongoing relationship between strategizing and materiality. It is acknowledged that materiality is not "just" selected by strategists but can also present itself to strategists in relatively unpredictable ways – consistent with what Leonardi (2015) says about the emerging imbrications that naturally occur between human and material agency during everyday strategy making practices.

The above papers do recognize (albeit somewhat implicitly) the emerging nature of material agency. However, they do not entirely do justice to the agentic role of materiality because they implicitly assume that humans can affect materiality but not the other way around. Namely, materiality has agency – it is not just that humans see materiality emerging through practice, and give it certain meanings. The practice perspective goes beyond this phenomenological view and suggests that materiality can gain agency in its own right, for instance shaping human practices (while simultaneously being shaped by humans).

In sum, most strategy-as-practice studies more or less explicitly treat materiality as a set of "tools" that can be used by strategist as needed; a few recent attempts to take this further fail to unpack the concept in its depth and breadth and in particular they do not acknowledge the agentic role of material agency. In this paper, we aim to address this limitation by illustrating how power can be embedded into a variety of material artifacts and have an "active" role. We look at these artifacts from a sociomaterial perspective (Orlikowski, 2007; Orlikowski and Scott, 2008). The next section expands on the context of our fieldwork and provides details on the methods/techniques adopted to analyze the data.

Context and Methods

Fieldwork was undertaken longitudinally (September 2010 – April 2015) *in situ* and retrospectively (2008-2010, including the review of documents), adopting an interpretive qualitative approach (Walsham, 1993; 2006). Interviews were conducted with clinicians (doctors and nurses) and "end users" (families of children with complex care needs). The aim of the interviews was to have each participant tell her/his 'story' (i.e., their version of key events) in the style of confessional (Schultze, 2000), narrative accounts, allowing for uninterrupted storytelling. Thus, the data provide a holistic overview of events, as provided by the actors involved, who were not conditioned by narrow and/or specific questions. In most cases, we were able to undertake repeat interviews. As interviewees mentioned other key actors, we then arranged interviews with those concerned – using a snowball sampling method (Rankin and Bhopal, 2001) – in order to ensure that we collected perspectives from a broad range of stakeholders.

Case Background

The case focuses on a pilot project, which had the aim of improving coordination of care at Dooly, and between the hospital and other (external) healthcare agencies including social services. While the need to improve healthcare coordination at Dooly emerged in 2008, the project analysis and bidding process (and approval) took two years. The first (pilot) phase – April 1st 2010 to April 1st 2014 – was funded jointly by a

Local Health Integration Network (LHIN) and the Province[1]. In April 2014, the pilot was granted a year's extension (second phase) with additional funds from local healthcare networks.

The pilot project focused on children with complex care needs – that is, children with multiple and life-threatening diseases who need to be seen by several specialists. The necessity to improve healthcare coordination emerged in 2008, when some families of these children pointed out that the different physicians (specialists) who were taking care of their child did not exchange crucial medical knowledge with each other. As a result, the families were often overwhelmed and emotionally drained because it fell to them to coordinate the care of their child – even though their lack of knowledge of medical terms might lead to imprecision in reporting their child's circumstances to the doctors. Additionally, external agencies (e.g., social services) were not always aware of each child's most recent health issues, and this too posed health risks. Further the hospital did not receive the most recent updates – from school or social service agencies – about their social/psychological condition. The project started in April 2010 with 20 children being enrolled in the pilot. A nurse dedicated to the project (nurse coordinator) and a project manager were hired, and one of the hospital doctors, who was already taking care of children with complex needs, undertook the role of full-time coordinating physician. In spring 2014 (second phase) additional funds made it possible to add resources: an additional nurse (full-time) and three physicians (one full-time and two part-time) were hired. This allowed them to enroll 20 additional children.

Data Collection

Data were collected at Dooly as part of a larger research project on healthcare innovation in the UK, US and Canada. Data were collected retrospectively (2008-2010), asking interviewees to recollect past events, and having access to various historical documents, and longitudinally (2010-2015). In terms of the longitudinal aspect of the study, forty-seven interviews and fourteen observations were audiotaped, professionally transcribed and analyzed using Nvivo (further details on the analysis are provided below). Documents included minutes from meetings and steering/advisory committees as well as data contained in a newsletter, various websites, and correspondence (emails) between project coordinators and the main actors. These were all uploaded on Nvivo and analyzed. Fieldwork was undertaken in four stages. The first stage (face-to-face interviews) started in October 2010 and ended in October 2012 (26 interviews and 8 observations). In 2013 (the second stage), we undertook 7 phone interviews and collected additional documents (minutes of committees and the monthly newsletter). In 2014 (until January 2015 - the third stage), we conducted 10 face-to-face interviews and 6 observations. In spring 2015 (fourth stage) we collected additional documents and notes from informal phone calls with the project manager and a physician, to be up to date with the evolution of the initiative. We collected data in different periods in order to capture the evolution of and changes associated with the initiative. Several interviews were repeated so that we could ask the same people to tell us what had changed since the last time we met or had talked on the phone

Data analysis

Data analysis commenced in January 2011, shortly after the start of the data collection process (October 2010). Data analysis started 'right away' because this gave us the chance to do preliminary analyses and return to the study participants with follow-up questions, as needed. Our first task was to input all interview transcripts collected by January 2011 in Nvivo, along with other documents such as the pilot's November and December Newsletters and other details (notes that we had taken). This was the starting point for the creation of a very broad narrative (some 8,000 words) describing the events that we were able to capture retrospectively (2008 – 2010) and longitudinally (2010-2011).

In Spring 2011, with several additional interviews being transcribed and loaded into Nvivo, two of the coauthors of this paper independently coded the interview data with the aim to identify two main themes (master nodes): first, we looked for relevant passages illustrative of the different goals reached by the pilot (e.g., knowledge sharing; coordination; improvements in healthcare quality and efficiency). Second, we

[1] The Canadian government system is very decentralized and the Provinces manage (public) health funding. Later in the paper we refer to the 'government', and the Ministry of health, by this meaning the Province and the Ministry of the Province. For more information about the Canadian healthcare system you can visit its Wikipedia webpage at http://en.wikipedia.org/wiki/Health_care_in_Canada (last time accessed by the authors January 11th 2015).

identified specific interview 'chunks' that we coded as being explanatory of how such goals had been pursued and achieved (e.g., with what processes, practices, organizational mechanisms). Most codes were exchanged (double blind review of each others' codes) between the two researchers to ensure reliability (Lombad et al., 2002; Tyler and Gnyawali, 2009). 670 initial codes were identified after the first round of interviews (ending in October 2012). The codes were further reduced and we ended up having 28 main themes associated with how knowledge sharing and coordination had been improved at Dooly in order to: 1) create efficiencies, 2) create effectiveness, 3) improve the overall healthcare service delivery, and 4) reduce inequalities in the delivery of healthcare service. During the period 2013 – 2015 (telephone and face-to-face interviews and observations), we further expanded our Nvivo database with new transcripts and we began focusing on aspects associated with power and the use of material artifacts (as described in the next section).

Findings

This section provides a narrative of the events unfolding at Dooly and gives context to issues associated with strategic practices that influence coordination. This is illustrative of bottom-up strategizing, Then, we examine how a variety of material artifacts were being used by strategists to achieve their objectives; that is, to improve coordination of care across the Dooly network. We break down the findings into three periods. The first (2008-2010) provides details about the genesis of the initiative – from informal discussions to a strategic plan, and the bid for resources. The second relates to the initial operation of the pilot (2010-2014), undertaken with limited resources, yet successful. The third describes the period 2014-2015, when additional resources were given to the pilot, with more children enrolled in the initiative.

From Conception to the Start of the Pilot Project (2008-2010)

The need to improve coordination arose from concerns expressed by a number of the children's parents. Dooly hosted a family forum, which gave parents the opportunity to share their experiences and feelings about their child's care. The family coordinator had this to say:

> *When I started, my role was like an ombudsman … and I supported the family advisory committee at the hospital. So ours is called Family Forum. And they predate me. They're in existence for about sixteen years. So these families volunteer to sit on the committee. There are about twenty of them. And their goal is to help the hospital to become more family-centered and identify from their perspective what would make things go better for families.*

In 2008, the families made it clear in the family forums that they needed better coordination of care and were able to convince Dooly (in particular the CEO) that something had to improve. During family forum sessions, examples (e.g., blood tests being taken multiple times by different specialists) of the lack of coordination proliferated. Moreover, the parents needed to tell each specialist about what other physicians had been doing in relation to prescriptions, tests and the like. These coordination problems involved both within-hospital issues (specialists not sharing information) and between the hospital and the other agencies. The constructive spirit of the forum led to managers and clinicians at Dooly and from other agencies to formulate a proposal and bid for funds to create a pilot project that could improve coordination. A number of informal meetings (including dinners) occurred where these people (six in total, three from Dooly and three from three other healthcare agencies) discussed how the coordination issues could be overcome and with what additional resources. The bid was accepted in 2010 and steering and advisory committees were created. The steering committee includes Dooly's CEO and the CEOs of the other agencies, plus the coordinating physician and a project supervisor (VP of Academic Affairs at Dooly). The advisory committee includes the 'core team' – the people who bid for the pilot project. It has a twofold role: receiving input from the families (two families sit on the committee), and putting into practice the decisions made by the steering committee, as highlighted by a manager from Social Services:

> *… we make up the advisory committee. That's pretty much us. And then that committee's job is to actually make it operational. Right? So take the vision that the leadership had and make it work.*

The pilot proposal was strongly supported by the hospital's CEO who attended the family forum meetings. He was also involved in the literature review that was compiled to add credence to the bid: in 2009, the CEO supervised a masters' student who wrote a dissertation on healthcare coordination, having gathered

information on pilot projects in healthcare (in Canada and the US) related to how to overcome coordination issues. The literature clearly showed how such issues could be overcome. Moreover, the CEO's involvement helped to promote the pilot outside the Hospital by, for example, involving other (external) partners:

> *The coordination of the care project just came from an idea …[from] and really pushed by our family forum … And in a meeting I had with them they said that they were very concerned with the fact that the parents had to essentially be the case manager for the children who had very, very complex situations … So I then called a meeting with [the CEOs of external agencies] and a few other people and we started to discuss what type of model we could think of to relieve the families from the burden of coordinating the care. And it took us months [laughs] to arrive at a model. We looked … at literature … [and] reviewed what was being done elsewhere.*

While a new hospital CEO is currently handling the transformation of the pilot into a program (having taken office in February 2014), back in 2010 the (now former) CEO was already pursuing strategies to convince the Province to obtain permanent funds. The second CEO held several meetings with the Ministry illustrating evidence (documents, reports, etc.) of other pilot projects that had been successful:

> *There's another [pilot project] at Sick Kids in [another large city in the same Province] that is very different but with the same goal. And so the Ministry has agreed to look at the two pilot projects and see if the outcomes are positive to potentially fund the projects.*

The pilot was promising in view of the careful analysis of the coordination shortcomings and because it was advocated for by influential people: in addition to the Dooly CEO, the hospital's chief pediatric physician (hereafter, the coordinating physician) pushed the specialists to move from working in 'silos' and begin to share knowledge about the children's health conditions. The latter did so by meeting informally with the specialists and by highlighting the relevance of sharing knowledge about patients, as it would ultimately improve their ability to make accurate diagnoses. The specialists listened to the coordinating physician because she was well respected and had been working in the hospital for more than 15 years. Moreover, she used examples of other pilot projects of a similar nature.

The First Phase of the Pilot Project (April 1st 2010 – April 1st 2014)

The pilot had its official start on April 1st 2010, and the families soon perceived the benefits of improved coordination. The coordinating physician arranged to have all the specialists involved share their expertise, opinions, test results, and the like in relation to each case. The lack of coordination issue had been well known at Dooly for a long time (as noted, the family forum had raised the issue over several years) but all prior attempts to 'force' specialists to share clinical knowledge about patients had been unsuccessful. For example, on one occasion a mother had formally complained that she had had to go to the hospital two days in a row for the same test. The chief pediatrics consultant had rebuked the specialist who had requested the unnecessary repeat test, and for a short while this specialist (and others who were aware of the incident) had notified other doctors about the tests that they were prescribing in order to avoid another complaint about wasted resources. But this practice did not last.

Once the pilot project started, the coordinating physician took action to improve cordination on a more permanent basis. She did this not by imposing strict, mandatory 'rules' for the specialists (who would probably resist in any event); instead, she was able to persuade the specialists of the relevance of having a holistic view being taken of each case. This occurred in internal meetings (for physicians) where the coordinating physician highlighted the relevance of sharing knowledge, providing examples of the benefits that such sharing could make. The pilot project manager highlighted the key role of the coordinating physician as follows:

> *Because her job now is to look at the child as a whole. No other physician [can do that work], unless they [the children] are in the community, so pediatrician or a family doctor would kind of do that work. But in a hospital setting you wouldn't have that. [The coordinating physician] does that. And she will then communicate the information to all of the specialists internally as well as externally.*

However, from a family perspective, what made the difference was the new possibility of contacting the (full-time) 'nurse coordinator', whose main role was to act as the interface between the Hospital, the

families and external agencies. The nurse coordinator reports directly to the coordinating physician, from whom she receives the most recent updates about each of the 20 children enrolled in the pilot. Then, this knowledge is shared with the families. The nurse coordinator calls, on average, each family at least once a week – often just to check to see how the child is doing, sometimes to share a lab result or to ask families to take the child to the hospital. The families contact the nurse coordinator about once a week too. Most often contact is made via email, the main reason being that the families need to a refill a prescription. Other times, phone calls are made because of a 'quasi-emergency': quasi-emergencies occur when the child does not feel well and the family struggles with whether or not a visit to ER is required. In these situations, generally, the nurse coordinator immediately contacts the coordinating physician, and, if necessary, the coordinating physician checks with the specialist(s), and feedback is provided to the family within minutes, avoiding needless trips to Dooly. Moreover, the nurse coordinator uses a 'cheat sheet' – a short (two page) medical sheet that synthesizes the most relevant information about each of the children enrolled in the pilot. The nurse coordinator updates the cheat sheet when a change in a child's condition occurs. The cheat sheet is then handed to the families (so they can bring it to different specialists, and if needed, to ER – even in other hospitals) and it is sent via fax or email to relevant external agencies. The paper-based cheat sheet provides relief to parents who no longer need to understand complicated medical terms from very long clinical reports. It is designed to include only relevant (e.g., life-threatening) information about the child, and in a way that is specific enough to be meaningful for doctors, but easily understandable by non-clinicians (the families and other non-medical agencies like schools). The idea of a cheat sheet was originally suggested by a father during a family forum session. The need to develop a single document incorporating only and all the relevant information about a child's health in electronic format was first evaluated by the advisory committee, during the initial phase of the pilot, in Summer 2010. However, the limited funds available did not allow its technical development; thus, the idea of this "paper-based" information system was constantly being developed by physicians and nurses, together with the families who have set on the advisory committee, over the years. A brief description of the cheat sheet is provided in the quote below (nurse coordinator).

> *So it would have a brief history, all the medications that they're on, all the surgeries they've had, all the testing's that they've had, and a brief description of what their normal physical findings were. So really you would take this page and you'd be able to read it and have a really good synopsis of the patient. And that document is actually what took the longest time to develop. Because we wanted to make sure we were as accurate as possible. So going through all those medical records was a big undertaking but it was certainly very necessary because you would see as you went back to the first medical record all the diagnosis were listed, everything, and then as you progressed through medical records, whoops, this diagnosis was left off. Things got lost along the way so it was a really good retrospective look at the patient.*

Overall, having the nurse coordinator managing the updates and distribution of the cheat sheet across the Dooly network was incredibly helpful for coordination purposes. Moreover, the nurse was literally acting as the "hub", or a single point of contact for the families, who see her established role as one of the most helpful achievement of the pilot. As one of the mothers noted:

> *Yeah, I call her [the nurse coordinator] and even if it's just her message machine I know she's going to respond.*

In addition, families can now meet together with all the relevant specialists involved – something that was almost impossible before the pilot – in what are called 'family focused' meetings. The project manager points to these meetings as being a very relevant aspect of the pilot so far as the families are concerned:

> *So … what we do is, we bring the players around that are important to the family. Have a family focused meeting. The [coordinating physician] is always there and there might be other specialists that come depending on what the issues are.*

The nurse coordinator also shares the cheat sheet with external agencies, mostly because they, too, need information about the children's condition. Prior to the start of the pilot there was little communication between the Hospital and these external agencies, and most of the decisions about a child's treatment (even those involving socio-psychological aspects) were made by Dooly doctors and nurses in isolation. Likewise, knowledge of the psychological condition of the children was seldom shared with the Hospital, and many decisions that were made locally (by social services, schools, etc.) were not shared, even though

there were general guidelines that required these communications to occur. With the involvement of the agencies in the 'partnership' many things changed. The nurse coordinator described her interactions with other agencies as follows:

> *So, sometimes the [Coordinated Access – one of the external agencies involved in the pilot] or social worker outside of Dooly seek information about a child. And it's very difficult to access information at Dooly, it's very difficult to get reports if you're not in the building, so they would use me to help facilitate what they needed outside. And basically anybody involved in the pilot could use me in that role as facilitator … booking appointments, changing appointments, anything they needed at [Dooly]. I'm their first call, so whatever they need they would call me, and then I would decide who I needed to call for them. So, we're really trying to eliminate families calling a million different people when they have a problem and just give them one … person to link with.*

Overall, by 2013, the pilot project had proved to be a great community initiative (a 'partnership'), capable of mobilizing knowledge within Dooly, across different agencies and with the children's families. Ultimately these processes had helped to improve overall healthcare service delivery for the children and their families. However, data coming from the Research Institute (Dooly's research center) did not reflect in full the benefits of the pilot. As the coordinating physician noted, this was because "using numbers over such a small sample – 20 children – doesn't prove much". Thus, there were still concerns about whether or not the pilot could become a self-sustainable program, permanently funded by the Province. Thus, the families continued to pressure the CEO in order to ensure that he worked to turn the pilot into a program – as explained by the family representative at Dooly:

> *So [Dooly's] Family Forum continues to advocate to the CEO that we don't want to see this end after one year and then a second year funding was secured for evaluation purposes and so now they're continuing advocating 'that's great for year two, now we want it long term and we would love to see it expanded'.*

The families themselves kept voicing their concerns very loudly during the family forum, advocating for the continuation of the pilot project, which now makes a big difference in their (families) lives and in the life/health of their children. For instance, we interviewed a mother of a child involved in the pilot who highlights the difference that it made for her and her son.

> *Before the [Pilot Project] it was like if I was in a business, you know, I wouldn't be the only person having to do all that work. You would have a manager, and you would have secretaries, you would have clerks, you would have a whole system of people and I before the project didn't have that, you know, so what would happen before the project would only be related to how much energy I had or what his health is, and so that I could only advocate so far to make things happen, you know. But now all doctors work together to talk about how it's going to work and who's going to take responsibility for pieces of making it work. It's not just a nice touchy feely this is a good idea, see you all later, but it's more okay, who's going to be responsible for which pieces and for somebody took notes about it, you know, so each doctor has access to those notes and is accountable, and again it's not left to me to run to a doctor and say well, did you do that part, you didn't do that part.*

Although the decision to make the pilot a program is still pending, a second phase of the pilot (2014) was granted by the CEO who was able to identify a different funding body (a local agency); this second phase allowed the enrollment of 20 more children, as we illustrate next.

The Second Phase of the Pilot Project (April 1st 2014 – April 1st 2015)

The second phase started in April 2014, with the pilot being staffed with additional resources as a result of the additional funds being granted. The push from the family forum to have 20 more children enrolled originated from the positive experiences of the pilot families being shared so that other families (not involved in the pilot) are now aware that the pilot has improved service. Additionally, the two families who sit on the advisory committee added their weight to expanding the pilot.

The coordinating physician argued that a natural consequence of expanding the pilot would be to involve more external health partners. Accordingly, a decision was made by the steering committee to include in the partnership four additional agencies not previously involved in the pilot but all of which provided

socio-psychological support to the children in the community. One representative of each new partner (generally the director/CEO) now sits on the steering committee and a manager of each new partner sits on the advisory committee. While this was initially well received by those involved, altering the composition of the committees soon posed challenges in relation to decision-making processes that are now more complicated as a result (according to observations undertaken in September 2014). The challenges arose in part because, while the initial membership by this time knew each other very well (and, more importantly, trusted each other), the new partners arrived "a bit out of the blue" according to the coordinating physician. It should be reiterated that the steering committee, meeting twice a year, provides the 'vision' for the pilot but not the means to achieve it. As argued by a manager of Social Services during an advisory committee meeting:

> *A board of directors doesn't tell you how to deliver service, but they do certainly tell you that you should go in a particular direction, right? They help frame the mission, vision, but they don't say how you accomplish or achieve that. So that's I think the role of the steering committee.*

However, the advisory committee meets twice a month and, as indicated above, is the actual committee that "makes things happen" (as noted by the project manager, during a 2013 interview). The coordinating physician, in a second interview undertaken in September 2014, indicated that one of the most relevant challenges of the pilot's second phase is to learn what the new partners do in terms of providing supportive care to the children. While the role of the Hospital is clear to the various community healthcare agencies, this is not the case with the other partner agencies that may offer very specific support to only a subset of the children enrolled in the pilot.

Those most involved in the pilot from an operational point of view were in this phase trying to see how to maintain the high quality of healthcare service delivery that characterized the first phase of the project but on a larger scale. However, this posed challenges because the main strength of the pilot was the personalized treatment that each child received, with families being supported around the clock by a nurse coordinator who is able to quickly respond. In this new phase, even with additional resources, information has to be mobilized across additional actors whether these individuals are clinicians at Dooly, the additional 20 families, or the new partners. In parallel, the new CEO is actively trying to convince the provincial government that the pilot project, now in its fourth year, needs long-term funds. The CEO's argument is supported by an independent study conducted by a university that indicated that healthcare coordination has improved service delivery substantially. The university study concluded that most families indicated that their workload in managing their child's heath has been dramatically reduced, while their child receives better support. Prior to the pilot, a number of parents had to leave their job, since coordinating the care of their children had been a full-time job, as indicated by one of the mothers:

> *You know, it was a full-time job. I had left work. I'm not able to work because looking after [name of the child] is a full-time job. If she's not sick, then I'm organizing issues for her medically. [But] she's sick a lot.*

The current CEO's background is in politics, and as noted by several people interviewed in September 2014, including a clinician: "he knows people, a lot of people [and] this will hopefully help us, otherwise the families will feel that we've abandoned them". The VP of Patient Care and Chief Nursing Executive at Dooly, who works hand-in-hand with the CEO, agrees that now, since the pilot project has been shown to be successful, "politics comes in to play". As she stated, there are several pilot projects in Canada that are good candidates to become programs but many interviewees pointed out that funds are limited and being able to influence relevant decision makers in government can make the difference. The CEO himself, in October 2014 told us that:

> *'[In interacting with the Province] I am using all sort of internal data, evidence from the community, families feelings, and our experience in a local program to make the case for promoting a kind of model on a wider scale'.*

Analysis and Discussion: Power, Resistance, and the Agentic Role of Materiality

Our findings describe a series of events covering the period 2008-2015 illustrative of how power played a key role within Dooly and across the local healthcare network. Moreover, our findings illustrate the role of

materiality, represented for instance by a Master's student's dissertation, Powerpoint slides and the cheat sheet. We discuss this next.

Power and Materiality

The first point to emerge from our findings is that power does not always reside in top management, a board or the CEO. For instance, in 2008, the families represented the power. In Canada, healthcare is public and hence the families in this instance were the voice of the voting and taxpaying community. Having said that, the families' needs were well received by the CEO who was supportive of a pilot project to improve coordination.

The family forum represents the context – or the "site" of practice (Nicolini, 2011) where issues are articulated by those with power (the parents). Huang et al. (2014) suggest that, within a strategy-as-practice perspective, the notion of site can be seen as a theatrical stage where practitioners (those who aim to pursue a strategy) engage in practice. In our case, the discourse in the site of action includes stories and anecdotes about the families' private life and how it is negatively affected by lack of coordination at Dooly and between the Hospital and other healthcare agencies. The families engaged in practices aimed at promoting change both initially and again, in early 2014, when the possibility that the pilot project could be terminated arose. Also, during family forum sessions, the families told stories about how their lives had been changed since the start of the pilot.

Power and discourse were not, however, only human activities; materiality was also important. Texts, such as 'official' documents (academic papers) and the Master's student's dissertation that provided evidence from the literature about the relationship between knowledge sharing, coordination and improvement of healthcare, also had power to influence the initiative. Moreover, the results of the literature review were combined into Powerpoint presentations – another material artifact – by the 'core team' (the student also being part of the core team).

Picking up from our literature review, it is worth recalling that Kaplan (2011) indicates that Powerpoint presentations are part of the 'epistemic machinery' of strategy. She argues that these artifacts are helpful to study managerial cognitions and political interests in strategy making processes. Heracleus and Jacobs (2008), similarly, found that such presentations could promote strategic understanding and consensus among senior management. We agree that Powerpoints can be "used" to shape collective frames to create a common understanding of strategy (e.g., cognitions) and this can be helpful to manage political issues. Therefore we acknowledge the meaningful contribution of these scholars. However here we depart from the idea that materiality can be *used* at the cognitive level. Instead, our case illustrates that there was little planning in terms of utilizing material artifacts such as dissertation data and Powerpoint presentations to support one's beliefs (or one's personal agenda). Instead, these practices emerged, bottom-up, *while* interactions took place. In other words, the strategy of creating a pilot project did not involve, initially, a literature review and carefully (and strategically) crafted presentations. Nevertheless, the emergence of these sociomaterial practices made it easier for those who were advocating for a pilot project to promote their strategy – in practice. In our opinion, looking at practices through a sociomaterial lens (therefore "giving up" all the rational and cognitive processes that are behind planned strategy) does justice to the ontological overlapping between the human and the material (Barad, 1996; Orlikowski, 2007).

The material agency embedded in Powerpoints, along with other official documents and emails, were also the means used by the second CEO to negotiate with the Province to grant the pilot long-term funding. The CEO uses "*all sorts of internal data, evidence from the community, families feelings"* to feed the narrative that the pilot project leads to improvements on several fronts. The CEO's argument is legitimized by the independent study of a University that conducted interviews with key healthcare players and with families in the report that was supportive of the positive effects deriving from the pilot. This way to engage in discursive practice by using 'sources of legitimization' (the Province's concern with releasing funds) is what Vaara et al. (2004) call naturalization. This concept is close to the "meaning power" of Hardy (1996). Hardy uses Pettigrew's (1979) study of factory closures as an example to show that the managers who wanted to avoid union and employee resistance undertook subtle activities that were aimed at legitimizing their decisions. These activities included using symbols such as redundancy (severance) compensation and consultation to put management in a good light. Additionally, their exposure to managerial reports, balance sheets and presentations helped to ground their decision to eventually close the factory by converting their decisions into facts that could make the closures

acceptable to the union and the employees. Meaning power is thus a subtle form of power that is based on people's ongoing assumptions about the world. These assumptions can make the actions of those who have power acceptable. Exposing strong evidence of the outcome of a specific decision (often involving a change as in the factory closure example) so that others will not object, is aimed at limiting or annulling conflicts. In other words, meaning power (Hardy, 1996) prevents conflicts in the first place. This meaning power is close to the dynamics involving the CEO and the Province (through legitimization/naturalization of concepts by recounting the University's research report), and here, we highlight how such naturalization processes unfold through practice. Discursive practices (speeches, formal meetings, illustration of documentations such as the research report – see Sillince et al., 2012) are aimed at avoiding conflicts. In other words, while Hardy's (1996) conceptualization of meaning power suggests that legitimizing ideas can support change, in this study we have considered *how* it can happen – through various types of discursive practice involving material artifacts. In this vein it is worth mentioning Denis et al. (2006), who describe the power of numbers in strategizing practices, where managers draw on a multitude of evidence (numbers) to support their point of view in a complex decision making processes. However, similar to our point regarding the Powerpoint presentations and the data derived from the literature review, here we aim to point to the emergence of such evidence, that nevertheless was helpful for the CEO to support his strategic agenda – in fact, both the managerial reports and the independent study were not commissioned to prove the benefits of the initiative, yet their manifestation was helpful to pursue strategy in practice.

From the above it is evident that power and materiality, combined, promote changes through everyday strategizing practices. The cheat sheet, for instance, is illustrative of how power (as practice) can be used to promote change (in this context, associated with sharing knowledge), which in healthcare might be challenging; one example being related to the difficulties encountered during the implementation of enterprise systems (e.g., EMR) in large hospitals or healthcare networks. The cheat sheet can be seen as a boundary object (Star and Griesemer, 1989) as it acted as a mediation device that facilitated knowledge sharing across the healthcare network. While each partner within the network can interpret such boundary objects as the cheat sheet somewhat differently (all boundary objects have some degree of flexibility in terms of the meanings that they give rise to), they nevertheless allow for effective communication (between Dooly and the agencies, and between the specialists and the families, for example). The cheat sheet allows local understandings to be reframed in different "sites" of practice by different practitioners. Levina & Vaast (2005) note that it is not some inherent property that makes an artifact a boundary object, but rather the way the object is used in "collective-reflection-in-action", thereby coming to acquire a common identity. In this sense, the cheat sheet does not simply play a role in creating common understanding that allows coordinated actions; it also plays a symbolic role, and embeds power by legitimating certain practices for those involved (Swan et al., 2007).

The Emerging Role of Materiality as a Change Agent, and the Role of Emotions

In sum, the cheat sheet, along with other material artifacts such as documents (the Master's student's dissertation) and Powerpoint presentations, are clearly agents that gain power in their own right, and influence strategic change. For instance, the power and legitimacy embedded in the literature review is not just instrumentally used or exploited by the "core team". In other words, the Master's student did not undertake a literature review *with a view* to leveraging it in the context of a pilot project. Instead, evidence from past clinical research *emerged through practices* – these involving interactions between the student and the supervisor, the sharing of dissertation drafts among people within the hospital and so on. Arising from these practices the evidence about coordination in pediatric care settings emerged as embedded in a myriad of material artifacts (conceptual as well as physical) such as the search engine – online medical databases of scientific journals – that contains the relevant papers for the Master's student's literature review (Orlikowski, 2007); the notes and drafts of the dissertation; the figures, diagrams and comments on the extant literature, and the like. This is illustrative of an emergent (material) agency that does not come into the scene "on demand" but, instead, unfolds through practice, and gains power (e.g., the power that resides in clinical evidence), therefore legitimacy, and these helped to promote changes involving current practices.

The power embedded in Powerpoint presentations is evident when dialogs, debates and – more generally – discourses emerge while the presentations are given, building pathos between those who attend the

presentation. Actually, most of the time (especially during committee meetings) the presenter and the attendees engaged in constructive discussions on how to take the initiative forward – the presenter outlining different possibilities and the attendees providing constructive feedback. This collaborative way to negotiate decisions is a clear example of how power of discourses can gain momentum through material artifacts such as a Powerpoint presentation. Moreover, here it is worth noting that the presentations are passionate and emotional and feed the existing narrative that coordination will positively affect the care of sick children. The second CEO believed this type of discourse was particularly effective and he embedded it in his negotiations with the Province (in presentations and speeches) in Fall 2014, with a view to gaining permanent funds for the project. Interestingly, the literature on power discourses related to "stories" that can support change does not consider how far passion and emotion might affect the responsiveness of the audience to these stories. Nor has health-IS related literature delved into issues associated with how far emotions can be "powerful change agents" and/or embedded for instance in material artifacts. Emotions are generally seen as individual reactions to a specific situation (e.g., a thief who points a gun at somebody, aims to make the victim feel afraid). However, from a practice perspective, emotions are produced relationally (Thrift, 2008; Stein et al., 2014). This means that not only do relations between actors produce emergent task-related outcomes (i.e., 'knowings') they also produce human emotions, that can result in a particular felt quality or mood, that characterizes our being-in-the-world (Ciborra, 2006). Thus, emotions are not simply experienced as an afterthought of action that is produced by an individual's interpretation of the situation, but rather emotions are a psychosocial phenomenon that emerges from collective action and emotions are performative, themselves generating emergent outcomes (Solomon and Flores, 2003). Indeed, Dreyfus (1991) argues that a mood is always present, shaping and being shaped by our collective actions and this mood can generate a collective energy (or its opposite – apathy, for example). This can be found in our case, and is related for instance to the family forum, with those present "whooshed up" (Dreyfus and Kelly, 2011) by the family accounts of their struggles, leading to increased determination to enact change by those present. Another example refers to the sense of relief that the families experienced with the growing legitimization of the cheat sheet, over time.

Finally, it is worth noting that our case shows the relevance of involving "end users" (in our case, the families) in decision-making processes and practices. This promoted knowledge sharing, not just between healthcare agencies, but also from and to those who were in receipt of the care (through the cheat sheet, for example). Involving patients happens all too infrequently in healthcare, and the insight about the power of this patient involvement might usefully be used in other healthcare contexts (Lehnbom et al., 2014).

Contributions, Conclusions and Implications

Our paper aimed to answer the following research question "*How do discursive power and materiality emerge and play an active role in everyday strategizing practices?"* Our empirical findings were illustrative of our initial claims that power and materiality are relevant concepts for strategizing practices, helping us to address our question and highlighting the contributions of our work, the main one being the lack of attention that has been devoted to the agentic role of materiality by strategy-as-practice scholars thus far. We provide evidence for the emergence of discursive practices (negotiations between various strategists). At Dooly, these practices eventually led to durable changes. While the relevance of discursive practices to "make things happen" is already well known in the literature, our contribution here revolves around the idea that such practices are combined with those involving material artifacts. But, even more importantly, we were able to show the emergence of such interactions between human and material agency, thereby shedding light on the unpredictable unfolding of practices – these involving discourses and material artifacts. In terms of the latter, we also illustrated that the various artifacts (clinical evidence and reports, Powerpoint presentations, and the cheat sheet) were not "set up" by organizational actors aiming to use them to achieve strategic objectives. Instead, materiality manifested itself through everyday strategizing, and gained power in its own right by being socially enacted and negotiated. This is relevant as it suggests that materiality is not just shaped by strategists but can also shape strategizing practices while they are being used – this supports our claim about the immanent relationship between human and material agency (Orlikowski, 1992), whereby they constitute each other through practice (Feldman and Orlikowski, 2011; Orlikowski, 2007). This contribution, we believe, helps in focusing the attention of strategy-as-practice scholars on the very philosophy behind materiality, from a practice perspective; that

is, *materiality has agency and this agency has the ability to shape everyday strategizing practices*. And this, again, addresses our research question as it explains how materiality, along with discursive power, emerges (*by doing*) and plays a role (*by being negotiated, shaped but also by shaping what humans do*) in everyday strategizing practices.

Along with our main contribution, a number of additional insights constellate our findings and discussion. These conclude our paper and suggest interesting implications/ideas for further research.

First, a relevant insight is that our case describes a bottom-up initiative, where the first to try to change the *status quo* were the families. Only after this were clinicians, managers, and ultimately the CEO involved. This is interesting and, we believe, consistent with the strategy-as-practice approach. Not only do we show that strategizing occurs in and through practice, but we also highlight that these practices do not solely emerge at the top-management level (as with most of the strategy-as-practice focus). Instead, at Dooly, the "real" strategists who initiated the change were those who were "only" the end users. This opens up several opportunities for further research involving, for instance, the interactive view of innovation, where ideas and novelties are not simply conceived and *then* delivered to the public but, instead, emerge from back and forth practices between the innovators and their recipients over time. One example from our fieldwork is the cheat sheet that of course derived from a traditional medical sheet (such as those that used to be placed at the foot of hospital beds). However, the way it was first conceived by one of the families was very different, and fitted more with the current situation (lack of coordination – so, the need to incorporate only and all the information needed to deal with different specialists). Then, the cheat sheet was revised by the clinicians, given back to the families (e.g., during the advisory committees), and further changed to meet current and emerging needs. Healthcare research on how far it would be possible to involve patients in innovative solutions to improve the overall quality of healthcare service delivery is a very relevant avenue of research, and, we argue, deserves attention. This is especially true if considered in light of a practice perspective, where these innovations are constantly negotiated through everyday practices. Moreover, the importance of the cheat sheet, in this case, suggests that the importance of IS for improving collaboration may not necessarily require an IT system (i.e., an EMR), something that future research might also usefully examine. In fact, although the initial idea was to turn the cheat sheet into an electronic medical record, limited funds did not allow for this to occur. However, as our findings clearly illustrate, a "paper-based" information system was designed and implemented, with all agencies being kept up-to-date on each child's health issues.

Second, our paper considers power and materiality in a networked context. Albeit looking at power and materiality in networks goes beyond the aim of our paper, it is worth pointing out that power is often analyzed in hierarchical settings where it is seen as being formal (e.g., the organizational chart) in contrast to informal (e.g., influence, leadership, social ties). In networked settings, actions addressed to promoting changes require more than a directive to each party to work together and achieve specific aims since there tend to be no hierarchical power relations that can impose direction (Rodriguez et al., 2007). One could argue that materiality played a role in putting together people from different organizations (the different agencies) because, for instance, the cheat sheet gained power in its own right and represented a powerful artifact that every member of the healthcare network could contribute to (e.g., by making a slight change, or providing a suggestion on how it should be shared across the network). For instance, Swan and Scarbrough (2005) note that seeing power as a resource that is exercised through hierarchy has limited effect in networks, as there is much less chance of actors belonging to different organizations being "commanded" through coercive means – a more socially enacted power is thus needed. This recalls the Latourian idea of the translation model of power. Latour (1986) relates power to social processes where changes are constantly negotiated, rather than "executed", as may be the case in a hierarchical setting (see the previous example related to the "token"). Latour's translation model is illustrative of the idea of power that resides in everyday practices that are imbued with particular values, cultures, symbols, and meanings in particular settings (Foucault, 1982; Bourdieu, 1977; Vaara and Whittington, 2012). Therefore, another potential fruitful avenue of research could be related to how materiality gains power in its own right in networked settings, by being translated by those who are invested in these practices.

Finally, we suggested that passion and emotion in delivering speeches and using material artifacts such as presentations and the cheat sheet, and in advocating for a change (discursive practices), were key in convincing the various recipients (first the "core team", then the CEOs) that a change from the *status quo*

was needed. This topic area, around how far "pathos" in discourse and the interactions between these discourses and materiality, we argue, deserves further exploration.

In sum, we conclude this paper by calling for more strategy-as-practice research on how power and materiality can promote strategic change in healthcare settings – for instance to promote electronic knowledge/information sharing systems such as EMR – by considering materiality as a "powerful change agent" in its own right. In so doing, we support and echo the call for more IS research that involves the strategy-as-practice perspective (Peppard et al., 2014; Whittington, 2014). However, we need to also keep in mind that bottom-up strategizing, specific networked contexts (e.g., healthcare networks) and emotions offer excellent opportunity to expand on the strategy-as-practice literature more generally.

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