2. Putting it to the Test: Knowing Through a Process of Validation

ABSTRACT

This article draws on a practice perspective on knowledge to theorize and empirically illustrate how individual experience becomes organizational knowledge through two separate processes of validation in which communities and networks of practice are paramount. We argue that the practice in communities of practice (COP) is different from the practice in networks of practice (NOP): members of a COP share the same situated practice while members of a NOP share an overlapping or similar practice. Since knowledge is inherently entangled with practice, how knowledge can be transferred from COPs to NOPs and even to an organizational level becomes problematic. Our study at a healthcare organization shows that to go from individual experience to organizational knowledge, two continua of knowing have to be crossed: the experience-knowledge continuum of COPs, and the hypothesis-knowledge continuum of NOPs and the organization. Therapists often develop new methodologies together with other members of their COP. They are able to cross the experience-knowledge continuum through what we identify as a process of experiential validation. For new methodologies to become fleshed out and accepted as appropriate methodologies in NOPs and on an organizational level, the hypothesis-knowledge continuum has to be crossed through what we identify as evidential validation. The more a methodology progresses through experiential and evidential validation, the more it becomes formalized and dependent on evidence that it actually works. Hence, this paper shows that for individual experience to become organizational knowledge, knowledge has to traverse two continua of knowing through two different processes of validation.
2.1. Introduction

Organizations have for long tried to store and exploit knowledge from its employees to make their business grow, increase their competitive advantage, and improve their innovative capabilities (Grant, 1996; Szulanski, 1996; Prahalad & Hamel, 1990; Huysman & de Wit, 2004; Huysman & de Wit, 2002). While organizations can also learn from other sources, such as competitors (Grans, 1996), an important category of knowledge resides within the practices of the employees within those organizations (Tsoukas & Vladimirou, 2001). Work in organizations is done by individuals, “on the ground”, who engage in various activities, use different tools and technologies, and often depend on their peers to cope with the idiosyncrasies of daily work and develop new knowledge when they face and resolve problematic situations (Kuhn & Jackson, 2008). By doing their jobs, individuals have different experiences and develop different levels of expertise for different contexts. However, translating individual experiences into organizational knowledge remains complex, as scholarly research has increasingly emphasized that knowledge resides in practice (Orlikowski, 2002; Feldman & Orlikowski, 2011; Tsoukas & Vladimirou, 2001; Østerlund & Carlile, 2003). The challenge that remains is that, if knowledge is entangled with practice, how can individual experience become captured as organizational knowledge (Tsoukas & Vladimirou, 2001; Huysman, 2004)? In this paper we aim to address this challenge by drawing on a practice perspective on knowledge in organizations.

Prior studies have adopted a variety of perspectives to progress our understanding of how individual experience can be translated into organizational knowledge. One line of research for example has conceived of knowledge as rather cognitive – “cognition affects actions (and vice versa)” (Crossan et al., 1999: 523) – and has focused on understanding how knowledge must be transferred from the individual, to the group, to the organization through psychological processes that turn individuals’ intuition into organizational institutions (e.g., Crossan et al., 1999; Crossan et al., 2011; Crossan & Apaydin, 2010). Another line of research on knowledge in organizations has focused more on the conceptualization of knowledge as experience that can be learned, shared, and transferred throughout an organization by storing such experiences in repositories such as tools, routines, or transactive memory systems, thereby turning individual experience into organizational knowledge (e.g., Argote & Miron-Spektor, 2011; Argote & Ingram, 2000; Argote & Fahrenkopf, 2016). From a more
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evolutionary perspective (e.g., Nelson & Winter, 1982) the literature provided the basis for understanding organizational knowledge as embedded in routines that can be seen as a skill or habit for an individual, and as memory for the organization.

The discussion on the literature on knowledge in organizations shows that knowledge resides in practice, and has to go through several transformations before it becomes organizational knowledge. While considering the problem from different angles, what the different approaches have in common is that local groups of actors are important for initial development of stable forms of situated knowledge (e.g., experiences such as group routines), and to move to the organization, knowledge has to become codified, routinized, or instantiated in procedures. To understand how individual experience may become organizational knowledge, we turn to the literature on the social-practice perspective on knowledge. This literature acknowledges the entanglement of practice and knowledge, and shows how knowledge can be shared within and across so-called communities of practice (COPs) and networks of practice (NOP) (Brown & Duguid, 1991; Brown & Duguid, 2001). In line with the social-practice perspective we discuss knowledge as a process: knowing. For COPs, we consider knowledge to be situated (Blackler, 1995) and hence because individuals and their communities continuously construct their understandings of their context and practice, we talk about individual and community knowing (Kuhn & Jackson, 2008).

Members of COPs are often co-located and work on the same tasks, such as printer repair technicians part of a local team (Orr, 1996; Brown & Duguid, 1991; Wenger, 1998). Knowledge is shared in such communities because members can relate to their own local practice and are therefore able to understand and apply new knowledge. Members of COPs typically have strong social ties and often interact face-to-face (Brown & Duguid, 1991). As members of COPs run into local problems, they collectively develop new knowledge as to cope with similar problematic situations (Kuhn & Jackson, 2008). In other words, members of COPs continuously develop “situated knowledge” (Blackler, 1995: 1041), which draws our attention to actors’ local experiences and interpretations of their situated practices.

On the other hand, within and often also across organizations there may exist many different COPs that together constitute networks of practice (Brown & Duguid, 2001). Members of such networks are more geographically dispersed, have less face-to-face interaction, and share a similar or overlapping practice (Brown & Duguid, 2001; Agterberg et al., 2010). While in COPs, actors share the same situated practice (i.e., their local work),
members of NOPs share an overlapping practice (e.g., their profession) (Tagliaventi & Mattarelli, 2006). Nurses who often work together in the same hospital ward can be considered part of a COP, while all the nurses in the department or even the entire hospital can be seen as part of the same NOP. While they do not share the same situated practice, members of NOPs are still able to fruitfully share knowledge (Tagliaventi & Mattarelli, 2006; Brown & Duguid, 2000; Wasko & Faraj, 2005). Organizational research shows that members of COPs share and integrate knowledge relatively easily, and to move from individual experience to organizational knowledge, knowledge from a community has to be transferred to members of the NOP (Agterberg et al., 2010; Teigland, 2003; Vaast, 2004).

While the different perspectives on knowledge sharing and transfer in organizations share a common understanding that knowledge needs to traverse different levels of analysis, drawing on the social-practice perspective on knowledge (Brown & Duguid, 2001; Orlikowski, 2002), the idea that individuals’ experience can somehow be turned into organizational knowledge seems problematic (Orlikowski, 2002; Feldman & Orlikowski, 2011; Nicolini, 2011; Huysman, 2004). Knowledge transfer from the individual to the organization is problematic because in COPs the term practice is used to refer to a situated practice (Brown & Duguid, 1991; Orr, 1996), while in NOPs the term practice refers more broadly to an ‘overlapping’ practice (Agterberg et al., 2010; Tagliaventi & Mattarelli, 2006; Nicolini et al., 2012). That the difference in practice between a COP and a NOP is problematic is supported by research that discusses the different boundaries that need to be overcome before knowledge can be shared across different communities and networks (Tagliaventi & Mattarelli, 2006; Nicolini et al., 2012; Huysman, Wenger, & Wulf, 2003).

Understanding how individuals’ experiences can become organizational knowledge is even more complex: individuals are nested within their own COP, which are in turn nested within one or more NOPs, which are in turn nested in the organization at large. Thought COPs and NOPs are not the only vessel through which organizations learn new knowledge in general, the discussion above highlights that COPs and NOPs prove essential for individual experience to become organizational knowledge. And if COPs and NOPs are what stand between individual experience and organizational knowledge, how can individual experience then become organizational knowledge?

In this article we study how individuals’ experiences are translated into organizational knowledge. Drawing on an in-depth study at a healthcare organization, we study how...
therapists develop new methodologies in practice, and how those methodologies incrementally become transformed into formalized methodologies within the organization. Our data show that this occurs through two separate processes of validation in which new methodologies are put to the test. The first process is *experiential validation*: a reciprocal process in which individuals share their experience with members of their COP who validate the individuals’ experiences by trying the methodology themselves. The second process is *evidential validation*: to turn the knowledge from the COP into knowledge in NOPs and in the organization, more evidence is needed for new experiences to be accepted as knowledge. Individual experience is quickly turned into knowledge in COPs because of the shared practice. But to come to knowledge in the NOP and in the organization, our findings show that both the NOP and the organization require evidence before accepting a new methodology as “proper” knowledge. In what follows, we will first discuss the key concepts of community and networks of practice and juxtapose the ways in which knowing takes place by drawing attention to the importance of a shared practice. We then explore how individual experience can become organizational knowledge through a longitudinal study at a healthcare organization. We conclude the paper by elaborating the broader implications of understanding the differences between individual and organizational knowledge.

2.2. Theoretical background

2.2.1. Individual experience

An important question in work on knowledge in organizations is: where does knowledge come from? Much literature has shown that individuals are at the center of organizational knowledge. It is because individuals *do* their work that they develop experiences on how to do their work in the best way, and by sharing such experiences with their peers, that knowledge can become stabilized: knowledge on an individual level is oftentimes considered “justified true beliefs about the world” (Huysman & de Wit, 2002: 15). Over time, experiences of individuals are confirmed, verified, and can become stabilized into organizational knowledge that is generalizable (i.e., abstracted from situated practice) (Tsoukas & Vladimirou, 2001).

A practice perspective on knowledge however, suggests that knowledge cannot exist outside of the work being done, because “knowing is a different way to describe the capacity to
proceed unhampered in whatever we do.” (Nicolini, Gherardi, & Yanow, 2003: 19). Scholars such as Schatzki (2001), Nicolini and colleagues (2003), Orlikowski (2002), and Feldman (Feldman & Orlikowski, 2011: 1243) have argued that “knowledge is not a static entity or stable disposition, but rather an ongoing and dynamic production that is recurrently enacted as actors engage the world in practice.” In Tsoukas & Mylonopolous’ words (2004: S3): [W]hat we call ‘knowledge’ is, at any point in time, the outcome of particular social practices that have come to be established, and through which the world is represented.”

The discussion above shows that actors in organizations “know” by “doing” (Tsoukas & Mylonopolous, 2004; Tsoukas & Vladimirou, 2001). By following the practice perspective, knowledge sharing becomes problematic: knowledge is entwined with practice, but if we cannot untangle knowledge from practice, how can knowledge be shared?

2.2.2. Communities of practice

While the actors situated in their practice are the ones who “know”, we also know that actors’ practice is not solitary. Much literature on knowledge in organizations has discussed the importance of communities of practice as hotbeds for knowledge sharing among actors who share the same practice (Wenger, 1998; Brown & Duguid, 1999). COPs are generally conceived of as local groups of actors who share the same work and interact regularly. Conceptually, in one of the earlier accounts on COP and their importance for knowledge sharing, Wenger (1998) provides three distinctive characteristics of COPs. First, mutuality, emphasizes the reciprocity of the relationships between members. Second, joint enterprise, means that members share a common feeling of belonging. And third, shared repertoires, draws our attention to the shared practice as members share common routines, instruments, and artifacts. Over the years the concept of COP has been defined slightly different in different seminal works (Cox, 2005; Huysman et al., 2003), but all agree that COPs present:

[e]mergent collections of closely connected (tightly knit) persons who engaged in frequent, social, face-to-face interactions, working side-by-side, and shared a common situated context or practice. (Agterberg et al., 2010: 87).

And if we understand COPs from a practice perspective, “practice” in COPs can be seen “as embodied, materially mediated arrays of human activity centrally organized around shared
practical understanding." (Schatzki, 2001: 11). Hence, because members of a COP engage in a shared situated practice and therefore develop similar experience and knowledge, from a practice perspective, COPs really are communities of knowing (Boland & Tenkasi, 1995).

Orr’s (1996) seminal work provides an apt illustration of what COPs are, how knowledge is shared in such communities, and why practice and knowledge are so entwined (Brown & Duguid, 1991; Wenger, 1998). In his study of printer repair technicians, Orr (1996) shows that the technicians are part of a COP in which the actors share the same practice and depend on each other’s experiences to conduct their work. As is often the case, the technicians face formal procedures provided by the organization that only accommodate for typical situations, so more often than not the technicians have to cope with novel situations as they encounter printers with problems for which the procedures provide no solution. In such situations, the technicians depend on each other: by building on the experiences of others, technicians are able to make sense of their own situation and are able to provide a solution, outside of the solutions provided by the procedures.

What the discussion above highlights is that practice is the key factor through which knowledge sharing happens. Actors who are part of a COP share the same practice and are thereby able to effectively interact, build on each others’ experiences, and integrate knowledge by developing new understandings for practice-related experiences. Moreover, because of the shared situated practice, individuals do not “know” outside of their community: there is symbiosis between the way a community comes to know something and how an individual comes to know something. The example of the technicians shows that individual and community knowledge is mutually constitutive: when an individual develops a new experience through practice, by engaging in their COP, members of a COP collectively come to know this experience as being true (“it works like this every time”).

2.2.3. Networks of practice

When we consider organizations as a whole, any organization is likely to consist of a collective of multiple COPs: generally referred to as a network of practice (Brown & Duguid, 2001). While COPs are by nature local, tight-knit, and “built” around the same work, members of NOPs are often more geographically dispersed, have weaker interpersonal ties, and share a common (but not situated) work situation (Brown & Duguid, 2001; 2000;
Tagliaventi & Mattarelli, 2006; Agterberg et al., 2010). Building on Strauss’ (1978) notion of “social worlds”, Knorr-Cetina’s (1999) idea of “epistemic cultures”, and Ziman’s (1967) “public knowledge”, Brown & Duguid (2001) developed the idea of networks of practice to refer to more loosely connected actors who do not interact regularly but are part of a similar practice. Again, as Brown & Duguid state: “[p]ractice creates the common substrate.” (2001: 205). They conceptualize NOPs as networks that are made up of many smaller communities and often cross organizational boundaries. Building on Orr’s seminal work (1996) Brown & Duguid (2001: 206) explain that organizations can be conceived of as overarching NOPs, as many different COPs are nested within that overarching NOP:

Within the class of network of practice, we would include such things as the 24,000 technical representatives working for Xerox. It is hard to conceive of this as a single community of practice, though the much smaller subset which Orr (1996) studied clearly is one. To generalize, the people in a particular job category within a large organization do not necessarily make a single community of practice. The category may comprise several communities of practice which together form part of a larger network, which may extend not only across the company, but beyond it.

In other words, members of a COP share a situated practice (e.g., repairing certain types of printers within a certain geographical location) while members of an NOP share a common practice (e.g., repairing printers).

2.2.4. Sharing knowledge across different practice

As discussed in the introduction, prior research on knowledge in organizations has highlighted the importance of both COPs and NOPs for knowledge to become “organizational knowledge”. Scholars such as Crossan and colleagues (1999), Argote & Miron-Spektor (2011) argue that organizational knowledge can only emerge if the knowledge from local situated communities is transferred to a higher level collective (e.g., networks, departments, business units). While from a practice perspective it is problematic to think of knowledge on an organizational level because knowledge is situated in micro level practice (Orlikowski, 2002; Feldman & Orlikowski, 2011).

Hence, when we theorize about the relation between COPs and NOPs, what becomes evident is that the practice is different between a COP and a NOP. Because actors within a single COP share a situated practice, they develop a shared history, experience, and identity,
which allow actors to “think together”, and share and create new knowledge: individual knowledge is fused with community knowledge (Pyrko et al., 2017: 389). Hence, understanding knowledge as something tightly bound with practice, knowledge sharing across COPs or even NOPs becomes problematic. Brown & Duguid (2001: 205) aptly described the difficulties of knowledge sharing across different situated practices.

It’s very difficult to make a carbon copy [of someone else’s gravity wave detector]. You can make a near one, but if it turns out that what’s critical is the way he glued the transducers and he forgets to tell you that the technician always puts a copy of Physical Review on top of them for a weight, well, it could make all the difference.

The difference between knowledge in communities and knowledge in networks also makes clear that talking about knowledge “transfer” within a single community of practice becomes ambiguous because the knowledge of the individual members is mutually constitutive with the community itself: people share, exchange, integrate, and create new knowledge through their shared situated practice. By contrast, talking about knowledge transfer helps us understand how community knowledge becomes network- and organizational knowledge, as the literature shows that sharing across COPs and NOPs is a more complex endeavor for several reasons.

First of all, whereas communities are tight-knit groups of actors, networks span several communities, departments, and even organizations (Brown & Duguid, 2001). Hence, members of NOPs interact less frequent and less face-to-face compared to members within a COP (Agterberg et al., 2010; Brown & Duguid, 2001). Members of NOPs for example only meet during conferences or through computer-mediated communication (Wasko & Faraj, 2005). Actors have different histories and experiences compared to the histories and experiences of other members of a NOP, because the work will be different in situ (Brown & Duguid, 1999; 2001). As a result, members of different COPs within a NOP develop different technical languages (Gherardi & Nicolini, 2000). Knowledge becomes “sticky” because it is difficult for members of different communities and networks to understand each other (e.g., Huysman et al., 2003; Szulanski et al., 2016; Tagliaventi & Mattarelli, 2006. Duguid, 2005; Carlile, 2004; Szulanski, 2002; Brown & Duguid, 2001; Szulanski, 1996).

Members of a COP engage in the same work, share a common background and hence their knowing is entwined with their practice: they know in practice. By contrast, members of NOPs throughout the wider organization do not share the same work and background and
therefore cannot know through practice. To illustrate our point, Figure 2.1 provides a conceptual overview of why there are two different types of knowing in organizations.

Bringing the discussion together we end up with two interrelated puzzles about how individual experience can become organizational knowledge. First, if from a practice perspective on knowledge we know that individuals’ experience and knowledge is inherently entwined with their practice and their COP, how does knowledge move beyond the individual and the COP? Second, while NOPs are essential for knowledge to become organizational knowledge, if the practice perspective teaches us that the practice of a NOP is not the same of the practice of a COP, how then does the knowledge of a community become knowledge of a network? Summarizing, the puzzle that guides this research states that:

Given that knowledge is embedded in practice, how can individual experience become organizational knowledge?
To answer our research question we conduct a longitudinal field study at a specialized healthcare organization: CareInstitute. The therapists at CareInstitute provide care for a highly complex group of clients who face a variety of communication related challenges. Because of the complexity of their practice, the therapists regularly develop both incremental and radical changes to their existing established practices: they develop new methodologies. To understand how individual knowing becomes organizational knowledge we study how new methodologies that are highly situated in practice become shared with larger groups of actors within the organization, and at what point a new methodology becomes accepted as a new institutionalized methodology. Next, we will first elaborate our study at CareInstitute and how we developed our inferences. The findings section will start with our conceptual model that visualizes the process of validation and two different sub processes: experiential validation and evidential validation. We end this paper by building on our insights from the findings to discuss the contributions for the literature on knowledge in organizations.

2.3. Methodology

2.3.1. Research approach

We adopted an embedded multiple-case inductive study (Eisenhardt, 1989). Because we wanted to understand how individuals’ experiences could become organizational knowledge, analyzed several separate cases to theorize how any particular case could or could not become organizational knowledge. By studying several independent cases we followed a replication logic in which each separate case could be used to confirm (or disconfirm) inferences drawn from other cases (Yin, 1984). Inferences drawn from multiple cases are generally more generalizable and grounded compared to the inferences from single case studies (Eisenhardt, 1989; Davis & Eisenhardt, 2011). Our research approach allowed us to study cases at different levels of analysis, which allowed us to draw richer and more reliable inferences (Yin, 1984).

2.3.2. Field site

The research setting is a specialized Dutch healthcare organization that provides care for children and adolescents who face a variety of different communication related challenges.
CareInstitute has over 4500 employees in 70 offices and 30 schools across the Netherlands. The different offices and school have their own specialization and target groups, ranging from audiology centers where diagnostics are conducted, to larger offices that house both classrooms and speech therapy facilities. CareInstitute’s headquarter is located in the South of the Netherlands and also houses a Research and Innovation (R&I) department dedicated to developing new knowledge about diagnostics and treatments. Most employees are specialized therapists such as speech therapists, linguists, psychologists, behavioral therapists, and educators. CareInstitute’s therapists provide care for children who have a combination of communication related conditions such as deafness, autism, blindness, and linguistic developmental issues. There are several domains in which patients can be classified: language-development disorders, hearing-impaired, deaf and blind, and autism spectrum disorders. Therapists are generally specialized in one of these domains but there are also therapists who span multiple domains. The therapists have a plethora of different methodologies (i.e., diagnostics and treatments) that they draw from when providing care.

In our study we encountered several COPs and NOPs. In line with Brown and Duguid (1991; 2001) we defined COPs and NOPs at CareInstitute as follows. We considered therapists to be part of a COP when they shared the same situated practice and indicated that they had strong social ties. The therapists generally worked alone: providing treatment for their clients happened during therapy sessions in which only the client and the therapist were present. At the same time, the therapists within a COP depended on the interactions with others to ask for input with complex clients and discuss potential new development that affect their shared situated practice. Because the therapists have such highly specific specializations, they could only consult peers who had the same local practice. An example of a COP is a group of four or five therapists within one specific location or department, who regularly interact with each other for consultation or sharing experiences as they are all concerned with providing care for clients between the ages of 4 and 7 that suffer from language development challenges combined with deafness. Hence, while the therapists worked alone when providing treatment for their clients, we considered them part of a COP when they explained to depend on certain colleagues who shared the same local practice. Subsequently, we considered therapists to be part of the same NOP when they shared the same overlapping practice, interacted occasionally, and typically did not share the same location. For example a group of 20 or 30 therapists within one region who are all concerned with clients who face language
development challenges and interact with each other once every few weeks or months to talk about developments in their field of profession.

To support a continuous interaction between what happened in practice and what was known on an organizational level (i.e., what was encoded as an accepted methodology), management attempted to facilitate knowledge sharing throughout the organization. One way they did this was by encouraging members from NOPs to come together in domain-specific meetings (e.g., deafness) every few weeks to exchange experiences, new developments, and practice related challenges. Therapists voluntarily signed up to be part of such networks for several years. Our observations show that the organization was structured in such a way that it allowed therapists to develop new methodologies “on the ground”, in their local communities of practice, and enabled them to validate those methodologies to see whether the institutionalized methodologies would need to be changed. Validating the new methodologies meant that some of them became adopted by the organization: they became organizational knowledge.

After eight months of data collection, CareInstitute was faced with governmental reforms that demanded the organization to increase standardization, efficiency, and cost-effectiveness. Working through these reforms the organization made various decisions that led to significant changes in policy. This unanticipated change provided us a unique opportunity to explore our data in ways we will discuss more extensively in the findings.

2.3.3. Data collection

In line with prior research that has studied knowledge sharing and integration within and across communities and networks of practice (e.g., Agterberg et al., 2010; Tagliaventi & Mattarelli, 2006) we adopted a qualitative approach and combined a variety of data sources to enhance our understanding of the empirical processes. We collected 33 semi-structured interviews with various therapists, 70 organizational artifacts (e.g., protocols and policy documents), 25 hours of observations of interdisciplinary and client-oriented meetings, and log-files of over 160 interactions on an internal communication platform. Our data collection resulted in over 1500 pages of primary source material.

Because we aimed to understand how individual experience could become organizational knowledge, we specifically probed our data sources for cases of new
methodologies. We sampled methodologies that were both fully developed (as organizational knowledge) and methodologies that were still in the making as these could provide more detailed and potentially unbiased information about the intricacies of the emergence of new methodologies. Data collection and analysis occurred iteratively: each observation, document, and interview allowed us to expand on and make sense of previous data.

**Interviews:** We conducted a total of 33 interviews with ten researchers, twenty therapists from a variety of disciplines, and three project assistants. We constructed an initial picture of which informants were involved in what fields and to what extent they were involved with knowledge development processes. The interviews were split into several sections, including questions about (a) their background, (b) what their work looked like, (c) their interactions patterns, and (d) the development of new methodologies. All but four interviews were conducted at the locations where the informants were working. Interviewing the therapists in their “natural environment” also supported our ongoing interpretation of where and how the therapists provided care for their clients. It for example enhanced our understanding of the necessity that the direct work (providing treatment) happened predominantly in private client-to-therapist sessions, while the therapists interacted with each other in different contexts, for example during the interdisciplinary meetings we observed. Later in the data collection process we analyzed the interviews and noticed the importance of the R&I department for providing resources to therapists who wanted to develop new methodologies. We continuously probed for specific examples and also asked the informants to explain the context of such examples (e.g., history or stakeholders involved).

**Observations:** We recognized the importance of interdisciplinary and client-centered meetings after they emerged in multiple interviews and a number of formal documents. The client-centered meetings were relatively intimate and only concerned members of a community of practice: two or three therapists who shared a situated practice provided care for a few clients separately, and came together to discuss the clients’ progress, what methodologies were used, specific hurdles (both administrative as care-related), and what methodologies should be used in the future. Such meetings provided valuable insight into how therapists together made sense of both existing institutionalized methodologies and new emerging methodologies. The interdisciplinary meetings brought together members of a network of practice: once every two or three months approximately 10 to 15 therapists from different disciplines and locations came together to exchange knowledge related to their
overlapping practice. These NOPs were for example related to language development challenges, deafness and hard-of-hearing, or autism. In total we conducted 25 hours of observations of such meetings, which strengthened our understanding of how the therapists exchanged developments in their respective fields of practice. We were able to draw from these observations as therapists often used these meetings to talk about problems with existing methodologies or the emergence of new methodologies in their own local COPs.

**Organizational artifacts:** In addition to the interviews and observations, we were able to collect a large amount of documentation such as minutes from other meetings, presentations from the research department, and project documents that contained detailed information on the emergence, development, and potential deployment of new methodologies. These documents initially provided necessary contextual information about how the organization “worked” and how new methodologies were developed. The documents allowed us to construct a more accurate picture of research projects, ask for explanation during interviews, and identify therapists involved with certain research projects for subsequent interviews. Policy documents also allowed us to locate relevant actors from the R&I department. Other documents provided us insight into how certain practices and processes were codified, for example what steps a therapist had to take to apply for funding from the R&I department when they needed resources to explore new methodologies.

**Online communication:** We also collected conversations held on CareNetwork, an enterprise social media platform comparable to popular social media such as Facebook. Since CareInstitute is a dispersed organization in which therapists do not regularly interact outside of their own location, the platform affords the therapists the ability to discuss developments with peers from both their COPs and NOPs. We collected over 160 discussions on CareNetwork that show that therapists use it to exchange new developments and events, and discuss issues they experience in their work. Several discussions emerged on the shortcomings of existing methodologies and we followed such discussions to understand how therapists worked on challenging existing methodologies and developing new ones. We also used the platform to identify relevant interviewees.

**Informal discussions:** Both before and during the data collection we engaged in numerous informal conversations with managers, therapists, assistants, and researchers. Before we formally started data collection, several meetings with several researchers, therapists, and executive managers helped us become acquainted with the organization and
these meetings assisted our theorizing because they provided additional nuances on how the organization aimed to create organizational knowledge from individual experiences. Other informal conversations took place before and after several of our observations as we talked with different therapists about their personal experiences. The informal conversations were particularly valuable in locating additional relevant data sources as many people could point our attention to potential relevant new sources of information. For example, after one conversation about the importance of knowledge development of CareInstitute, two informal conversations pointed our attention to several books that were written about the history of CareInstitute. These additional documents provided essential for our understanding of the role of new methodologies in the daily “life” at CareInstitute.

Near the end of our data collection we shared our preliminary interpretations with several networks and with an executive manager. We presented our findings and actively involved participants in expanding our understanding of the data and these sessions helped us crystalize some of our findings. The participant confirmation strengthened our theorizing and interpretations.

2.3.4. Data analysis

Our analysis progressed through four phases: (1) how new methodologies emerged, (2) how therapists and COPs developed these methodologies, (3) how (and whether) NOPs and the organization come to accept a new methodology, and (4) whether the validation process occurred both before and after the reforms.

We first focused on understanding the emergence of new methodologies. We worked on identifying talk about formalized methodologies (e.g., formal diagnostic protocols) and new methodologies (e.g., actual work). Following Elsbach (2002), we define formalized methodologies as methodologies that have become taken-for-granted standards and blueprints for actors in terms of what methodologies, diagnostics, instruments, and routines to use in specific conditions. We coded for “new methodology” and “emergence” whenever therapists explained that they worked in a certain way that was not in line with the existing methodologies. We coded for methodologies that were discussed during meetings and on CareNetwork when therapists exchanged problems and talk about local challenges. Most revealing were discussions in which therapists talked about how they worked with more
fleshed out methodologies. These discussions allowed us to understand that new methodologies generally emerged when therapists had the idea that the current way of working could be improved. After going through our data we identified a total of 20 distinct new methodologies, which are described in Table 2.1.

<table>
<thead>
<tr>
<th>Case name:</th>
<th>Description:</th>
<th>Emergence:</th>
<th>Outcome:</th>
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</thead>
<tbody>
<tr>
<td>#1: Articulation App</td>
<td>Application for tablets to interactively train a child’s articulation, track its progress, and share with others.</td>
<td>Card game to support articulation does not allow therapists to track and share progress. Game is outdated.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#2: Digital Diary</td>
<td>Program to document any developments of the child and exchange digital material.</td>
<td>Use of paper notebook sensitive to damage, loss, issues with handwriting, and does allow very little interaction between stakeholders.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#3: iBook</td>
<td>Application that supplemented existing methodology with features to add media and track progress.</td>
<td>Existing method for communication does not afford the use of new available material and does not track progress.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#4: Video Interactive</td>
<td>Using video material to support interaction(s) among the child, its parents, and therapists.</td>
<td>Current video material not suitable for specific conditions of a child, does not match culturally, and problematic with multilingual clients.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#5: Language Development Guide</td>
<td>Questionnaire that therapists can use to support their diagnostic decision-making process.</td>
<td>Diagnosing if multilingual clients have language development challenges or other issues was done with few guiding principles.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#6: Interactive Interpreter</td>
<td>Using an interpreter to improve communication between a client and therapist.</td>
<td>Some therapists are not skilled in sign language but still occasionally have to work with clients who communicate best through sign language.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#7: Video 4 Reading</td>
<td>Video material based on scientific research to assist therapists in teaching deaf children to read.</td>
<td>Teaching readings skills to deaf children is very difficult and no tools are available to help therapists with this.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#8: Phonology</td>
<td>Collection of scientific insights in phonology with various recommendations for practice in linguistics.</td>
<td>New research difficult to find and apply but therapists wanted to update their existing practices about understanding tones in speech-language.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#9: Visualizations</td>
<td>Way of using visualizations rather than words and sentences during interactions with clients. Results in developing ‘language’ between therapist and client.</td>
<td>Communication between a therapist and a child with hearing issues can be extremely difficult due to differences in (sign-) language skill levels.</td>
<td>Experiential knowledge in COP</td>
</tr>
<tr>
<td>#10: PsychoEdBook</td>
<td>Set of methodologies and materials (e.g., video) to support the treatment of language-development disorders by using psycho-education. Specific age-group (12-14).</td>
<td>The policy consisted of a specific book with guidelines and exercises for children, but many therapists had issues with this, which initiated the development of a new practice.</td>
<td>Organizational knowledge</td>
</tr>
<tr>
<td>#11: ID Sign Language</td>
<td>Set of lessons to teach children who are hard-of-hearing sign language, taught by teachers who are deaf themselves.</td>
<td>To improve interaction with other children, children need to learn sign language, but this becomes difficult, as they do not see the benefit because they can speak with their other friends.</td>
<td>Organizational knowledge but not COP knowledge</td>
</tr>
<tr>
<td>#12: Multilingual Speech Screening</td>
<td>A set of guidelines and protocols that will provide linguists and speech therapists with an 'approved' set of tools to improve their diagnostics of multilingual children.</td>
<td>Diagnosing whether multilingual children have difficulties with their speech or language can be difficult and there exist no clear protocols and guidelines. Hence, linguists wanted to start to develop this.</td>
<td>Experiential knowledge but not organizational knowledge</td>
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<tr>
<td>#13: SI Massage</td>
<td>Massage therapy that one therapist learned in an external training and wanted to professionalize for Carelnstitute to disseminate the effective therapy.</td>
<td>Because of a lack of available practices, therapists are eager to learn any new methods to help them care for children with sensatory integration impairments.</td>
<td>Experiential knowledge but not organizational knowledge</td>
</tr>
<tr>
<td>#14: BrainRest</td>
<td>Training for therapists to better cope with stress caused either by the reforms or by what they experienced in their daily work (e.g., traumatized clients).</td>
<td>There were no existing ways to support therapists in managing stress potentially caused by the reforms and general dynamics of their work. Demand grew for support.</td>
<td>Experiential knowledge but not organizational knowledge</td>
</tr>
<tr>
<td>#15: CI &amp; teachers</td>
<td>Teaching to deaf children is done by deaf teachers who sometimes have a cochlear implant, which requires a adaption in ways classes are structured and which teacher is involved.</td>
<td>There is increasing evidence from research and from experiences from teachers that having a deaf teacher provide lessons works ‘better’ than hearing teachers.</td>
<td>Experiential knowledge but not organizational knowledge</td>
</tr>
<tr>
<td>#16: Autism Training</td>
<td>Therapists working with children with autism developed a training by aggregating their individual mini-trainings they developed themselves. They wanted to integrate their different approaches to autism treatments.</td>
<td>The R&amp;I department provides several autism trainings but therapists do not receive funds to attend those. They develop it individually but there is no coherence.</td>
<td>Experiential knowledge and NOP hypothesis but not organizational knowledge</td>
</tr>
<tr>
<td>#17: Confidence Presentation</td>
<td>Session in which a client with communication-challenges is asked to provide a presentation about herself. The presentation provides a safe environment to practice self-presentation.</td>
<td>Clients often have trouble talking and communicating, and hence talking about oneself can be a difficult challenge. One therapist had the idea to have clients focus more on their self-presentation skills as the policy prescribed using written documents.</td>
<td>Experiential knowledge but not organizational knowledge</td>
</tr>
<tr>
<td>#18: Therapy Targets</td>
<td>List of targets in terms of progress and intensity that speech therapists can use to pick from when determining the potential target progress of a client.</td>
<td>Therapists need set their own targets for clients based on expert-intuition. This policy proved to be too vague for the therapists and they themselves were in need of clearer (standardized) subset of goals.</td>
<td>Experiential knowledge and NOP hypothesis but not organizational knowledge</td>
</tr>
<tr>
<td>#19: Language Guide</td>
<td>Set of guidelines, goals, and associated practices (methodologies) on how language should be treated.</td>
<td>The lack of a coherent view on language (e.g., when to provide sign-language to children with CI) was troublesome in practice. Therapists wanted to discuss and develop a coherent guideline.</td>
<td>Experiential knowledge and NOP hypothesis but not organizational knowledge</td>
</tr>
<tr>
<td>#20: WellBeing</td>
<td>Program to provide attention to deaf children who suffer from psychological issues.</td>
<td>Many deaf clients suffer from psychological issues, and this has received too little attention in the past. Because it concerns a very large proportion of Carelnstitute’s clients, it became relevant to revisit this topic.</td>
<td>Organizational knowledge</td>
</tr>
</tbody>
</table>

In the second phase we aimed to construct a comprehensive account of all the activities that occurred from the emergence of an idea until it became institutionalized as a new (formal)
methodology. When coding for the emergence of new methodologies in phase 1, we noticed the importance of CareInstitute’s culture that praised “knowledge development.” This culture encouraged therapists to share new methodologies with others and develop them further if they had a hunch that their new methodology afforded better care than the existing ones. It is in this process of sharing that we noticed that new methodologies would go through a number of flows to determine whether it could supplant an existing methodology. By comparing all cases together we coded for such activities and initially ended up with eleven distinct cycles of arrows. We then compared these activities and discussed several activities that overlapped. For example the activities of discussing with peers and checking relevance were overlapping to such an extent that they always occurred in the same coding event: when therapists discussed their idea with their peers, they did so with the purpose of seeing whether their peers would see the relevance of the new methodology. We therefore merged some activities and ended up with 10 distinct activities. During the analysis we found that these activities constituted a process of validation in which a new practice would be put to the test. Furthermore, after comparing how each of the 20 different cases went through the process of validation, we were able to clearly cluster the activities into two separate sub-processes of validation: (1) experiential validation, and (2) evidential validation.

The different activities and the two sub-processes were inductively derived during our analysis as we identified important changes in the way therapists worked on their practices and searched for further clarifications in subsequent interviews, observations, or documentation. After constructing the experiential and evidential validation process, we checked whether our data provided evidence for all of the activities. If we encountered gaps, we returned to our data, and were able to gather additional data by contacting some of our informants. We for example received crucial information on the WellBeing case (methodology #20) that showed that this methodology received resources because it proved to be potentially valuable for CareInstitute.

After revising our validation process through several iterations, we were able to clearly delineate when one activity ended and where another one began. For example, activities 1 through 5 that constitute the experiential validation only involved peers who shared the same situated practice and typically happened on the location where the therapist worked. Moving from the COP to the NOP (activity 6) indicated the beginning of the evidential validation and started whenever the therapists for example decided to take their new practice to a regional or
even national meeting where they discussed the pros and cons with peers from their NOP. In our findings, we discuss these different interaction activities in detail by providing rich examples from the 20 cases we identified.

The governmental reforms that occurred halfway through the study provided an unexpected but useful opportunity for learning about which flows were necessary to produce organizational knowledge. As we will discuss below in the findings, the reforms created a naturally occurring breakpoint in the data since the reforms made it difficult for therapists to go through some parts of the validation process that were necessary to validate their new methodologies. Activities that our analysis suggested led to certain outcomes before the reform disappeared after the reforms. By comparing the validation process before and after the reforms we could determine whether certain outcomes could be achieved without particular activities or not, thereby providing independent empirical support for our conclusions. Comparing all cases together and by also comparing what worked in the "successful" cases compared to what happened in the unsuccessful cases helped us develop our validation model in the first place. With successful cases we refer to cases that were able to move from individual experience to organizational knowledge. By comparing the successful versus the unsuccessful cases, we noticed that evidential validation only happened among the successful group: the unsuccessful cases lacked evidential validation, but still underwent experiential validation.

To compare the validation process before and after the reforms, we created a matrix in which we arrayed all the possible activities the therapists could conduct for validating new methodologies by the particular outcomes that could occur, and we populated the cells with a check mark if the activities took place. Because the reforms are part of our empirics, we will discuss their implications in more detail in the findings. Most importantly, the reforms resulted in fewer slack resources for the evidential validation process to take place. And because so many of the activities that constituted the process of evidential validation were made difficult to conduct after the reforms, we reasoned that if the activities would actually lead to new organizational knowledge we should see fewer outcomes of “new” organizational knowledge, and more outcomes where the new methodology remained experiential knowledge at the COP after the reforms. Similarly, the types of steps that were taken should be roughly the same for those outcomes in which both experiential and evidential validation took place both before and after the reforms. Developing this matrix provided evidence that
organizational knowledge could only be “created” through evidential validation. The matrix allowed us to verify our overall validation process since we were able to determine that for each new methodology that was not transformed from experience into organizational knowledge, the evidential validation process did not happen.

2.4. Findings

The results of our analyses are presented in three sections. First, we discuss that there are two different continua of knowing. Whereas individuals and their COP have an experience-knowledge continuum, NOPs and the organization are more concerned with a hypothesis-knowledge continuum. Second, by building on the two continua of knowing we discuss that to move from individual experience to organizational knowledge, these different continua have to be crossed through a process of validation that consists of two distinct sub-processes of validation. The first is experiential validation and shows that because individuals and their COPs have a shared situated practice, they learn together and hence together move from experience to knowledge. The second is evidential validation and shows that NOPs and organizations cannot fall back on a shared situated practice and therefore need some form of proof before they can move from hypothesis to knowledge. Third, and finally, we discuss how the governmental reforms affected the validation process by diminishing the possibilities for evidential validation. Our analysis shows that without a proper evidential process of validation, individual experience could not be turned into organizational knowledge.

2.4.1. Practice and continua of knowing

Based on our data we argue that there are two different continua of knowing. The first continuum concerns individuals and their communities and we conceptualize this continuum as the experience-knowledge continuum. The second continuum concerns NOPs and the organization, and we conceptualize this continuum as the hypothesis-knowledge continuum.

We talk about a continuum of knowing to indicate that knowledge is not a static entity but rather an ongoing process (i.e., knowing). Individuals have experiences during their daily practice, develop knowledge as those experiences are repeated, and have new experiences that at some point change their knowledge. Members of NOPs however, have a different situated
practice and therefore the experience and knowledge of a COP will start out as a hypothesis for a NOP. By putting the hypothesis to the test, the continuum of knowing of the NOP moves from hypothesis to knowledge. Making the distinction between these continua of knowing makes it possible to understand how individual experience can become organizational knowledge. The next sections will discuss these continua of knowing in detail.

**Individuals and communities of practice: the experience-knowledge continuum**

The therapists at CareInstitute provide a variety of treatments, and many therapists together form local COPs. The members of these COPs share the same situated practice and therefore also often interact, for example about how they treat certain client conditions. One of the sign language therapists for example talks about his local group of teachers, who all provide care for a relatively wide variety of clients. In this example the situated practice is teaching geography through sign language to pupils with different backgrounds.

> For example the geography team. That’s a club I really collaborate with because they also teach to different pupils from different years and different levels. We really have a lot in common.

The quote illustrates that the therapists form a community because they share the same situated practice. Another example of a COP at CareInstitute concerns a speech therapist who, together with another speech therapist and several teachers, formed a group about a specific type of treatment that helps clients develop their lexicon:

> We have a word assessment workgroup here in this school, and I’m in that together with a colleague speech therapist and several teachers from different levels.

Regardless of their different educational backgrounds, these actors all work with their clients on developing speech-language skills, which served as the situated practice for their COP.

Our data show that these COPs were necessary for the therapists to develop their own knowledge too. The experience-knowledge continuum is apparent at CareInstitute as the therapists depend on their COP to make sense of their own experiences and learn from others’ experiences. The knowing of the individual and the COP is mutually constitutive, because as the individual moves from having experiences to “knowing” how a certain
treatment works in a situated practice, the other COP members also come to know this because they share the same situated practice. A telling example is provided by one of the linguists who explains that she depends on her COP of fellow linguists to become socialized into the profession of linguistics. By developing her own local experiences and talking to other linguists about them, she is able to incrementally develop her knowledge, and thereby the knowledge of the COP:

You have to be working in practice here, and my study was very academic... I thought that was really a gap. So what I did, it’s nice to have the knowledge from your training, but I learned so much by gaining experience. By doing. And by joining those local meetings, touching base with colleagues, I really developed a lot of knowledge. Gaining experience. Practice experience. Later on we asked further about the meetings she just mentioned: Well we have the local linguists meetings here. About six times per year I think. It’s a meeting because on the one hand we think it’s important because we do the same things. Sharing knowledge. And hence learn so much from each other.

The quote illustrates that even though the therapists at CareInstitute do not work side by side, they still rely on their community to develop their experience into knowledge. The therapist explains what the literature on knowledge in practice has preached: her knowledge is inherently entangled with what she does in her situated practice. By talking with other linguists, the therapist from the example is able to build on her own experiences and come to know better how to provide care for certain clients.

What the discussion shows is that knowing for the individual and in the COP is mutually constitutive: through interacting about their situated practice, the members of a COP move from experience to knowledge on their continuum of knowing. The next section will discuss that the way in which individuals and their COP come to “know” something significantly differs from how a NOP and an organization come to “know” something.

Networks of practice and organizations: the hypothesis-knowledge continuum

The hypothesis-knowledge continuum of knowing refers to the knowledge within NOPs and the organization at large. Our data show that while the therapists within a COP moved from experience to knowledge by drawing on their experiences of their shared situated practice,
members of the NOPs and the organization did not share the same practice and therefore required more evidence (e.g., test results) that proved that certain knowledge was valid. As an example, we talked to one of the therapists who is part of both her own COP and of a larger NOP of therapists concerned with language development challenges. While both collectives provide here some value in the sense that she can learn from others, the NOP restricts that because she cannot learn from the same situated experiences:

Those local meetings feel very different because it is really specifically for us as linguists, so it is very specific about the work that we do. And at the [language development] meetings, well it is about language development challenges [i.e., their overlapping practice], but you can also have hard-of-hearing or autism specialists, so that’s also a difference with our local meetings, so yes there’s more about what we as linguists do there [at the local meetings]. So you can go much deeper into discussions, because well at the NOP meetings you of course have everybody, with diverse backgrounds, and I think that’s good too, it has it’s benefits. But it is a difference. Yes. You can go much deeper [in the linguists get-together].

Interviewer: I understand, so how important are the local meetings for you as linguist?
Therapist: Oh really very important! You get so much knowledge and information from there.

The quote illustrates that while the people in her COP do share the same situated practice, the people in the NOP do not share the same practice. While she is certainly able to learn from others’ experiences regarding their use of language development therapies, their experiences differ significantly from her own, and from the experiences that she shared within her local COP of linguists.

Building on the previous example, our observations of one of such language development meetings provides another example that without a shared situated practice it is much harder to collectively develop knowledge. The therapists, while they share nuances in their specialties, all are concerned with providing care for clients with language development challenges. During one of the conversations, several therapists explain that a certain test just does not really work for them in their situated practice, and so they want to be free to use their own tests. However, one therapist from a different department is not convinced by their complaints and rather emphasizes the importance of evidence:

For example, when the new diagnostics is discussed, others talk about difficulties of knowing whether this diagnostic actually works. Some tests seem nice but turn out to be strange and not work in their practice, “they’re weird tests”, “it’s not working on the workfloor”. One therapist, Leanne, explains that she’s using a slightly different
guideline and it seems to be very useful in her own work. In response, another therapist from another department responds critical and that to use a certain methodology you need to “test the hypothesis”. She explains the need to research and potential experiments to find out if the diagnostics work for language development challenges, and emphasizes the others should trust the data from the research “if the data shows it, then it must be sensitive [to the disorder].”

The notes from this illustration show that the different therapists in the NOP “knew” differently: even though some explain that based on their experience a different methodology works better, several other therapists are skeptical and require tangible proof because they cannot reflect on their own shared situated practice.

We encountered several of these situations in which the discrepancy between the situated practice of the COP differed significantly from the overlapping practice of the NOP. Our notes from another language development meeting show that the therapists eventually end up in an argument about which reading methodology is most applicable for children with language development challenges. While some therapists draw on their own experience and explain that some methodologies just work better in their situated practice, others are not convinced by this and emphasize that they should run some formalized tests to see which one works “best” based on the data.

Talking about developing one common reading methodology, Jenn mentions that everybody is now working with their own reading methodologies. Another therapist responds and explains that it’s difficult to pick one and make that “the” methodology that everybody should use. Jenn replies by explaining that they – on their location – try to find the best reading-method by basically trying them all, to see which one works best on their location. A colleague of Jenn adds that she thinks that this should be done organization-wide to make sure they all do the same, AND to find out what method works ultimately the best. Several others protest and exclaim that there is not always ONE best way to work, there can be several that work either equally well or depend on the exact situation: “THE method doesn’t exist!”

This second example also shows that there is a discrepancy between what therapists experience in practice and what the organization may accept as “knowledge”. The discussion in this example illustrates that what individual may know to be true (e.g., that a certain methodology works fine in their situated practice) may not convince the NOP and the organization because they rely on evidential knowledge (i.e., they need proof). By contrast, in the COPs the therapists come to an agreement fairly easily because they are able to draw from similar experiences from their shared situated practice. Compared with the COPs, members
of the NOP have a more diverse practice and therefore cannot agree that easily on
determining what counts as ‘valid’ knowledge.

Our discussion here shows that the two continuia of knowing are distinct. While for
members of a COP, knowledge is embedded in their situated practice and they learn through
experiences from both themselves and their peers: their continuum of knowing moved
towards knowledge by sharing experiences and gradually reaching a form that is shared with
all members of the COP. For NOPs and organizations however, knowledge is more abstracted
from practice and often encoded, for example in protocols. One of the administrators
explains that an important goal of the organization is to create organizational knowledge that
is stable and codified:

So how can we influence the actions of the therapists? Well we try to invest in that,
amongst others through educational trajectories. So we also try not only to write the
knowledge down, but also encode it into a course, or in a workshop or video.

While the administrators strive for organizational knowledge, our earlier examples show that
for the individuals and their communities, knowledge is more about *knowing*, and is
entangled with the way they do things in their situated practice. Our data thereby shows that
the two different continuia of knowing make it problematic for individual experience to
become organizational knowledge: the actors in NOPs do not share the same situated practice
as the actors within COPs. The dilemma then becomes to understand how it would be
possible to go from individual experience to organizational knowledge.

### 2.4.2. Two processes of validation

The prior section showed that individuals and COP know as they, together, move along the
continuum from experience to knowledge. Drawing on our study at CareInstitute, we argue
that *way* therapists move along this continuum is through experiential validation: it is by
going back and forth between the individuals and the COP. As we will discuss in detail below,
the individuals do not come to know something by themselves, but through interacting with
their peers from their COP. The prior section also argued that members of NOPs and the
organization know as their continuum of knowing moves from hypotheses to knowledge.
Rather than through experiential validation, our analysis below will elaborate that the way
they move along this continuum is through evidential validation. We will discuss that members of a NOP do not come to know based on experiences from a shared situated practice, but together with the organization by developing evidence that proves to them that the new methodology works.

The two sub processes of experiential and evidential validation consist of a number of interactions between individuals, their COPs, the NOP, and the organization at large. To visualize the complexity of how the experience-knowledge and the hypothesis-knowledge continua are crossed, Figure 2.2 depicts the entire process. Figure 2.1 (in the theory section) presented the nested model in which the actors are part of COPs, which are part of NOPs, which are part of the organization as a whole. In Figure 2.2, our extended empirical model, we zoom in on a part of Figure 2.1 to show the interaction flows between the different levels of analysis. The top of Figure 2.2 indicates the different rings: actors, COPs, NOPs, and the organization. On the left we show three individual therapists. The second ring then depicts the specific community of practice that these three therapists on the left are part of. The third ring then represents the network of practice in which multiple COPs are part of. The fourth and last ring then indicates the organization in which all NOPs, COPs, and individual actors are part of. We limited our visualization to three therapists and three COPs for practical reasons; in reality there might be much larger COPs and or NOPs. As the model demonstrates, there are two sub-processes: the first is experiential validation and concerns the individuals and their COP; the second is evidential validation and concerns the NOP and the organization. The arrows indicate the interactions between the different actors, and we identified those arrows in our data whenever we noticed interactions related to the emergence of a new methodology.

Consider the following illustration of the model: (1) Ellen experiences that a change in a methodology may work better, and she talks to her peers about this. (2) Indicated by the dotted lines, her peers reflect on their own experiences to interpret whether the “new” methodology may work. (3) If they are positive, Ellen provides some guidelines to the others. (4) The others use guidelines, try them out in their own practice, and share their experiences. (5) Through ongoing discussions the community comes to an agreement that this new methodology is “how we work”. (6) They encounter peers from their NOP and share their methodology. (7) Because members of the NOP cannot draw from the same situated practice, the therapists ask the organization for resources to develop and test the methodology.
Figure 2.2 – Visualization of how individual experience becomes organizational knowledge
(8) The organization grants resources to test the hypothesis and see if the new methodology really works. These therapists develop the methodology in a more formal methodology and, whenever possible, test its merits. (9) They share the results and the possible formal methodology with the organization. (10) Based on the results the organization makes the new methodology a new mandate by adding it to their repertoire of accepted methodology to be used in CareInstitute.

Activities 1 through 5 constitute the first sub-processes: experiential validation. Activities 6 through 10 constitute the second sub-processes: evidential validation. By following the arrows, they turn into a loop that, step by step, moves along the two continua of knowing. In the experiential validation, each activity moves the experience incrementally towards knowledge shared by the COP members. In the evidential validation, each activity moves the hypothesis incrementally towards organizational knowledge.

In the next sections, we will first discuss sub-process 1, the experiential validation processes, by following the different arrows and flows through which the experience of one therapist becomes knowledge throughout a COP. After discussing the experiential validation, we will discuss sub-process 2, the evidential validation process through which hypotheses for NOPs and the organization are turned into knowledge.

**Sub-Process 1: experiential validation**

All practices that go through the validation process emerged during daily work: something happened that made the therapists wonder whether a new, different practice might work better than the current methodologies prescribed and began to formulate an idea of what the new practice would look like. Ideas typically emerge during daily work when therapists encounter clients for which existing methodologies do not seem to be sufficient. By drawing on their expertise and experience, the therapists develop some preliminary methodology to use in their own treatment sessions. One example is from a communication specialist who often interacts with clients using various levels of sign language or speech-language skills. The therapist experienced in his work that it can be difficult to develop a common understanding when using only sign language or written text and he tried to develop a methodology to communicate with children by drawing visualizations on paper:
So when you have conversation with your client, and you are not as good in sign language as your client is, and your client is not as good in written Dutch as you are, then you have a gap, because you don’t know sign language and your conversation partner doesn’t know enough written language, and you start writing sentences…[sarcastic tone indicating that doing so won’t work]…then what ways can you find [to understand each other]? Yes, drawing!

He continued to explain that he initially attempted to see how making visualizations worked when interacting with his clients. The example of making visualizations with clients illustrates that therapists developed a preliminary version of the new methodology to try out in their own situated work, to see whether their idea actually had any merit.

The next five paragraphs will discuss the first five activities that together constitute experiential validation: (1) discussing ideas with coworkers; (2) reflecting on own experiences; (3) providing some guidelines; (4) processing collective experiences; and (5) coming to know in the COP.

1 – Discussing idea with coworkers (COP): Whenever a therapist has some experiences that make her think of a new way of providing treatment for their clients, she discusses her experience with some of her colleagues. These colleagues typically share the same situated practice and discussions occur, for example, in the hallway or during lunch. Such discussions serve as initial moments where the therapists can touch base with other members of their COP. As one example from the case about teaching sign language to children with cochlear implants (CIs), we observed a discussion during a local meeting where therapists who were all providing care for clients who are deaf or hard of hearing were talking about sign language courses for children with cochlear implants. Based on some preliminary personal experiences, Marie explains that it might be a good idea to have deaf teachers teach such courses. In her experience this makes it easier for the children to understand and process the courses, and by sharing it with the group she hopes to see what others think about this idea.

They talk about how to teach children with a CI, and in particular whether or not to train them in sign language. Marie adds that it might be a good idea to have such courses taught by a deaf teacher. She adds that she has had some positive experiences with that. One of the other therapists immediately responds very positive because she knows another example of CI kids that are trained by a deaf-teacher. Other teachers exclaim: “Super nice!”, as the teacher continues to explain that it makes it easier to teach kids sign language.
Chapter 2 – Putting it to the Test

As the quote illustrates, while having deaf teachers provide such courses is not “standard” procedure, Marie personally has good experiences with this new practice, and shares that with her peers who have the same situated practice. By sharing her experiences, she is able to receive confirmation whether other therapists might think it is indeed a good idea. The example indicates that therapists first share their personal experience with their COP to touch base about their shared experiences and get an initial feeling whether a new methodology might make sense. In response, the other members of the COP start to reflect on their own experience, as discussed next.

2 – Having peers reflect on own their experience: When the therapists talk to their peers about their idea for the new methodology, their colleagues typically immediately reflect on their own experience. Because they share the same practice, their shared experience is the first thing they draw on to consider whether the idea has any merit. By reflecting on their own situated practice, the therapists are able to understand the extent to which the new methodology can actually work in their own practice.

One example comes from the CI Teachers case and shows how the therapists reflected on their own experience. It happened during another meeting in which therapists were talking about the importance of teaching sign language to children with CIs. While initially some therapists did not immediately understand the relevance of using sign language when clients have a CI (since CIs provide some hearing capacity), by reflecting on their shared and situated experiences they were able to agree that indeed having these kids learn sign language may be vital for their personal development. The field notes capture the interaction between five therapists that were part of a COP: they all provided care for clients, within a specific age range, who were deaf or hard-of-hearing and also faced speech-language challenges.

Frans, Ingrid, and Roos discuss with each other that it’s super important for children with CI to still learn sign language, because once they go swimming, showering, engage in sports, or the battery dies, these children will fully rely on sign language. It is therefore essential. Esther then reflects on her own experience and explains that she knows another group of CI-children that now receive sign language. She mentions that “you can see them blossom”, indicating that the kids feel much happier as they can interact with their friends more easily. She explains that these children also were able to interact much better in an environment where other children did not have CI and were not deaf. The other therapists indicate to now realize the importance of sign language for children with CI.
As this example illustrates, only because the therapists have a shared situated practice can they reflect on their own experiences. And by reflecting on their own experience, they can come to understand the relevance of the new methodology.

3 - Providing some preliminary guidelines: After therapists have the experience that a certain methodology could improve their work, and discussed it with their peers, their continuum of knowing moved a little further from experience towards knowledge – which is represented in Figure 2.2 when moving from 1 to 2. When their peers indicate their interest in the new methodology, the therapists exchange some preliminary guidelines. The therapist who came up with the new methodology develops these guidelines: because she has some experience with applying the new methodology in her own work she can provide such guidelines.

A vivid example is provided by the Visualization case. One therapist, Pieter, first had the personal experience that using several visualizations could improve the quality of interactions. As his colleagues reflected on their own practice, they explained that they thought it might be a really good idea, but they did know how to apply such a methodology in their own work. Because his colleagues provided him with positive feedback, he was more certain that his methodology might actually help his peers to interact in different (better) ways with their clients. He even invested some of his own time and money into developing more tangible guidelines. After receiving positive feedback, Pieter structured his experiences into a workshop that others could use to experiment with in their own work:

So from the principles I found in this book I got, I have developed a workshop for group leaders in which they start drawing, as a conversational technique. And eventually when you do that enough with each other, you will – well it’s individual of course – you will develop your own language with your client. So a certain scribble means ‘going to school’, and if I would see that, I wouldn’t understand it, but because you decided that with your client, [you would]…Get it?...And in that way you can visualize different things.

As the quote shows, because Pieter first had some positive experiences in his own situated practice, he is able to build on his own experience to provide his colleagues with some tangible guidelines that they can use to try the methodology in their own work. The shared experience is essential for new methodologies to move from individual experience to knowledge in the community.
4 - Sharing situated experiences: As the members of the COP share the preliminary guidelines and try them out in their own work, Figure 2.2 shows that the continuum again moves a bit further from experience to knowledge because the initial experience of one therapist incrementally becomes knowledge for all members of the COP. After sharing the preliminary guidelines, it is possible for the other therapists in the COP to try the new methodology in their own practice and develop their experience.

By using the preliminary guidelines, the therapists “return” to their own work, try it out, and at a later moment (whenever they encounter each other again) discuss their experiences, which helps to determine how the new methodology works in their situated practice. As one example from the language development guideline case, we witnessed a discussion during which the therapists from a COP shared their experience with the language-development guideline. The guideline emerged because it can be quite difficult to determine whether a child has trouble learning a new language, or actually faces complex language development challenges. The observational notes provide an account of the interaction between Jessica, Kim, Irene, and Maud.

Kim and Jessica explain that they recognized a lot of the different elements of the document in their own work, and were positive about the guideline. Irene concurs and adds that she was actually already doing some of these things but just never in line with these guidelines. The others agree that these guidelines match their work and make it easier for them to “do” language-development diagnostics. Only Maud has some reservations. She says that in some situation it does not seem appropriate: she had a client who was deaf, multilingual, and also faced possible language development challenges. They discuss such cases can be problematic, but also exceptionally rare. The guideline is not suited for that level of complexity and they agree that for such cases they either trust their own expert-experience, or contact each other for input.

This example shows that the therapists are able to decide that the new guideline actually improves their work. While Maud’s case shows that the guideline does not solve all their problems, it also shows that they discuss the limitations of the guideline. Through these discussions their continuum of knowing moves further from experience to knowledge. It is because they can build on the same situated practice and experiences that they can come to understand how the new methodology can be used in their practice.

5 - COP knowing: The discussion above illustrates that any new methodology incrementally moves from being the experience of one therapist to becoming stable knowledge for members
of the COP: it becomes accepted knowledge as they collectively know how to apply a certain methodology in their situated practice.

As an example from the digital diary case, one of the therapists, Fred, was involved with the development of the digital diary through which therapists and parents could keep each other up to date about any developments regarding the client. After having developed some preliminary version of this new methodology, the therapists shared it among each other to see whether it would also work in their practice. After some trial and error, the therapists came together to discuss how they experienced using the new methodology. Fred explained that by engaging in discussions in which they could share their experiences, they developed a common understanding of how they could use the diary in their own practice. Together, the COP came to know how to apply the methodology, as Fred explains:

So I have discussed it with some other users, “how is it working for you?” I told them that I first struggled a bit with how it worked, but I did get a lot of positive reactions from colleagues who are working well with it. And they’re very enthusiastic, because they can easily put pictures in there, and parents can put something in there, parents can also give grandparents some access to check once in a while. So yes it really works.

As the quote illustrates, the therapists used the earlier guidelines or in this case the beta version of a new tool in their own work to see whether it would actually work according to their experiences. The digital diary was something that other therapists were happy with, and they successfully used in their own work and discussed their positive experiences. As a result, while the use of the digital diary started with an individual experience, through several cycles of interaction with colleagues, their knowing moved from experience to knowledge in the COP.

Summarizing, our data show that individuals come to know by interacting and reflecting on the shared experiences within their COP – they come to know through experiential validation. The example illustrates that the more actors come to know, the more their community comes to know. As an illustration, during one meeting where a therapist from one COP explained that she and her colleagues have started using a new questionnaire, the therapists had decided for themselves that this is how they provide care from now on – it had become experiential knowledge for them, and she exclaimed that: “This is for us almost like a bible now, you must really always have it with you!”
Sub-process 2: evidential validation

While members of a COP come to know through experiential validation as they move from experience to knowledge, members of a NOP do not share the same situated practice. Therapists in a COP are engaged in the same specific client-category or therapy-category, such as providing articulation lessons for blind and autistic clients who have speech-language challenges, between the ages of four and eight. By contrast, the therapists in a NOP rather share an overlapping client-category or therapy-category, such as therapists from different disciplines that all provide care for blind and autistic children who face speech-language challenges. The members of a NOP are thus not able to know because of their shared experiences, and therefore treat the knowledge from COPs as hypotheses that should be tested or proven in a way that allows the NOP to know. What we found is that NOPs, together with the organization, come to know through a process we call evidential validation. In Figure 2.2 this is illustrated by flow 6 through 10.

6 – Moving from the COP to the NOP: To convince therapists in a NOP about the merits of a new methodology, the therapists who came up with the new practice cannot merely depend on their shared practice: the therapists in the NOP will not be able to relate to the problem that easily, and hence need more evidence to be convinced about the merits of a new methodology. To overcome this barrier, the therapists often try to flesh out their initial idea for a new practice into a more objectified methodology that can be shared more widely across the organization. The provisional methodology is often used to exhibit the potential benefits of the new methodology and the downsides of existing methodologies to therapists and other actors in the organization.

Sharing the provisional methodology occurs both on CareNetwork (their communication platform) and during multi-disciplinary meetings of the NOPs, some of which are on a national level in which a variety of therapists engage in critical discussions to ask questions about the applicability, potential limitations, and whether there is any proof that the new methodology is indeed “better” than any of the existing methodologies. One typical example from the Interaction Video case shows how therapists involved the NOP in a new methodology. Hanna was one of the therapists involved with developing new videos to use for parent-client interactions. In her own COP, they had already developed some new
videos and appropriated the methodology accordingly for their own situated practices. Because she and her colleagues thought that others might also benefit from their new material, Hanna posted publicly on CareNetwork that one of the institutionalized methodology did not work well enough, and that they had developed their own newly video’s. She asked others whether they would be interested and what followed was a discussion by various therapists from numerous different locations that all experienced similar challenges. However, because their situated practice was slightly different from Hanna’s COP, they were interested but not completely convinced by the movies offered by Hanna and required more tangible proof that the video’s from Hanna’s COP were actually better. The following excerpt of a several pages long discussions illustrates this as almost all others responded by indicating that they were interested and like to know more about future formalized video’s.

Hanna: Within location “early treatment” we notice that the movies used in the [Video-course] match insufficiently with the parents. We recognize differences in population (kids with multiple handicaps versus language-development disorders) but also culturally. That’s why we are working to include our own material in the presentations. Are others already or have been working on this? If not, are there others that might find this useful?

Evelien: Hi Hanna, how nice that you’re making those changes! On our location we’re not ready for those yet, but we’d like to think along!!

Olga: Yes we have experience similar issues with the standard movies. […] Shall we see what we can do together?

Fleur: Dear Hanna, we’re not working on this but we do encounter similar issues. […] We (speech therapists in the North) do like to think about movies that may fit our client-group better.

Hanna: Thanks for all responses! It would be nice indeed if we could work with several other locations – hopefully with organizational resources. I will keep you posted.

The responses to this message show that members of other COPs were very much interested, but did need a more formalized methodology to become completely convinced. Through discussing the new methodology with multiple COPs within the same NOP, the therapists decided upon a hypothesis for which they wanted to request resources from the organization. So while the first COP sees it as knowledge, the NOP (and thereby the other COPs) sees it as “merely” the experience of one COP, which does not constitute enough evidence for other COPs to adopt the new methodology. Members of the NOP are reluctant not because these therapists are cynical or unreceptive to others’ ideas, it is because they do not share the precise experiences and situated practice of the therapists who initiated the new methodology.
Rather, members of the NOP want to see some more proof in the form of for example research assistance, evidence, or other forms of confirmation that the new methodology is suitable for them as therapists at CareInstitute. To develop the “objective” proof, the therapists turn to the organization.

7 – Requesting organizational resources: Typically, after the interest of the members of the NOP is piqued, several members of the NOP come together to write a proposal to formally request resources from the organization. In such a proposal they describe how the methodology is expected to improve the level of care. The therapists can apply for funding and potential additional resources at the R&I department. The therapists can seek resources from the organization in terms of time, funding, and assistance by researchers in order to further develop their new methodology. Research assistance is vital when knowledge in a specific field is relatively nascent, for example in the situation of phonology treatments. Financial assistance is needed when the methodology requires specific additional expertise, for example programmers to develop an articulation app. An example from the case of the Articulation app shows how Edith, Angela, and Ilse, wrote a project proposal in which they outlined their hypothesis about how the articulation app for tablet computers would significantly improve the level of care. The existing methodology (a physical card game) did not afford the therapists the ability to interact with patients in the way they wanted to. The project proposal was submitted to explain why and how an app would be better than the current situation, and how the project would look like:

The project will contain two phases: the first phase is the development of a plan of requirements for the to-be-developed tool. The second phase is the phase of development of a tool that meets as many requirements as possible. Developing this list of requirements requires various choices. For example, for which languages do we want to develop the tool first, what functions does the tool need to have, how does the ‘game’ work, how can we document results? [Project website]

The excerpt shows the level of detail that was necessary to convince the organization that they should provide resources. As the document outlines the precise steps that need to be taken, this shows to the organization that the therapists are certain (to some extent) that the new methodology will indeed improve the level of care. If the organization is convinced, the process of evidential validation continues.
8 – Developing and testing an archetype: In many cases the organization is interested in providing resources for such a project for several reasons. CareInstitute already has a strong culture related to knowledge development and also prefers to develop and employ evidence-based methodologies throughout the organization. As one of the executive managers explains when asked why he supports the formalization of a certain methodology he adds: "to have a proper research project with control groups and cross referencing, research methodology, to store it."

Continuing the articulation app case: after the project received funding from the organization, a group of therapists was in the process of developing the app and testing it formally to be able to show that the app helps to provide care. When the therapists received funding and formal approval to continue developing the articulation app, a beta-version of the app was developed. During this activity the app was revised a number of times to assure that it will actually “work” in different practice settings, as Edith illustrates halfway 2015:

Now the app is there and we are in a test-phase so we first have to fix some test-subjects, enough test-subjects before we can discuss the results and come together again [with the other speech therapist].

Her explanation illustrates that new methodologies were first tested to develop “proof” of the methodology’s efficacy. By developing a version that could be understood by different members of a NOP the therapists assure that the methodology can become adopted in the organizations’ repertoire of accepted methodologies. Figure 2.2 shows that by developing and testing an archetype, the continuum of knowing moves from hypothesis towards knowledge.

9 – From Hypothesis to NOP knowledge: When the tests are successful, our data show that the NOP comes to know the new methodology. Because the empirical proof convinced the members of the NOP that the new methodology might indeed improve their care practice, their continuum of knowing moved from hypothesis to knowledge. A telling example was provided by the ID sign language case. One of the therapists, Anne, collaborates with the R&I department to formally test and develop 20 sign language lessons that help pupils develop their identification process because they will be better able to interact with other pupils lessons, as explained in the following illustrations from the project website:
Chapter 2 – Putting it to the Test

Proficiency in this language [Dutch Sign Language] can play an important role in the identification process of these pupils. In this [research]project it has been studied to what extent it is possible to improve the sign language skills of these pupils by offering them twenty lessons in sign language.

An interview with a therapist who was involved, Romy, shows that through those testing procedures they were able to develop 20 formalized sign language lessons that, from then on, were considered the standard in their NOP of therapists who dealt with hard-of-hearing clients.

And that [study] showed that these children were first like “yeah yeah, I don’t need that”. But along the way – because these lessons were also taught by a deaf person – these children started to enjoy it increasingly. But also because they developed a sort of self-confidence in their regular classes, a sort of self-consciousness like “yeah, I’m deaf, I know sign language”. So it had a wide variety of consequences for them actually.

What the example shows is that thanks to the funding and research assistance the therapists are able to develop a provisional practice further into a “formal” version and are able to study its benefits scientifically to prove the actual efficacy of the new practice. Hence, our data show that being able to develop a formal methodology and having it tested is essential for the NOP to come to know.

10 – Formalization for organizational knowledge: After members of the NOP develop their hypothesis, request and receive resources from the organization, and develop a formalized and tested methodology, the continuum of knowing of both the NOP and the organization step-by-step moves from hypothesis to knowledge. The last part of evidential validation holds that the formalized methodologies is put in the CareInstitute formatting and is adopted into the official repertoire of methodologies to be used by CareInstitute personnel. The iBook methodology provides an interesting example. Judith, who was involved with the development of the iBook that can be used for interacting with clients, explained that while this methodology was previously already tested and formalized to some extent, she was able to put it in an iBook form to have it accepted on an organizational level. So while the methodology was already accepted by the NOP, the organization crystallized the methodology’s formatting to turn it into organizational knowledge:

At department [South], they developed a methodology, it was called something like
conceptual-supportive communication. And that’s for kids, adolescents, with autism, and often associated limitation. They wrote a book about it in 2007. [...] And that methodology is very important, but it should be made available throughout the organization. So resources were granted, and I was put on that project as project-leader. And I proposed: let’s make it into an iBook. Then you can download it for free on your tablet computer, and you can add movies [etc], and that was just released!

In a later interview we talked with Francien who was not part of the original COP that came up with the idea for the methodology, but was part of the NOP of therapists involved with autism and communication challenges. Because the methodology was developed, tested, and proven effective by the organization, she happily adopted it into her own work:

Concept-supportive-communication is a methodology developed by CareInstitute, and there’s an iBook for that now. You can even download it on your tablet computer! Really nice book, everybody can read it, movies, pictures, it’s super interesting!

This example shows that the therapists in the NOP need the formalized methodology from the organization to be able to know that the methodology works. Because both the NOP and the organization do not share the same experiences, they required the evidence to move from hypothesis to knowledge. Our findings thus show that for the organization to know: “We need to get the methodologies CareInstitute-Proof.”

2.4.3. The relation between experiential validation and evidential validation

Our data show that the experiential process does not depend on the evidential process: therapists and their COPs will develop new methodologies regardless if they are supported by organizational resources. One of the senior therapists explains that while therapists are developing new methodologies about language development and psycho-education, the organization does not provide resources. The therapists in this case developed their own methodologies anyway: they are convinced of the merits of the new methodologies based on their experiences in their COPs.

For language development and psycho-education, well the therapists did not receive resources, because the organization was like “well we’ve got that book, and there are other methodologies, those are already there so we’re not supporting you.” [...] it turned out that people developed all kinds of things themselves!
The example shows that even though the organization was not convinced that they needed to provide resources to develop the new methodology further, several independent COPs thought differently and developed several methodologies themselves – to the surprise of the organization. While evidential validation is necessary for the emergence organizational knowledge, it is not necessary for producing knowledge for individuals and the COPs.

Reforms that damage evidential validation

The governmental reforms that occurred halfway through this study provide an unexpected but useful opportunity to test if individual experience indeed needs to go through both experiential and evidential validation to become organization knowledge. Around the spring of 2015, CareInstitute implemented a number of changes in the way that clinical care was performed that were the result of mandated governmental reforms in healthcare in the Netherlands. These changes to clinical care require therapists to standardize their methodologies to make it easier for insurance companies to know what they were billing for and how much to bill. Additionally, therapists receive smaller payments for the same services they conduct, which reduces revenue for CareInstitute. As a consequence, CareInstitute had to drastically reduce the funding available for research and other exploratory activities.

The result of these changes is that many of the activities that therapists conducted to validate their new methodologies before the reforms were either difficult or impossible to do after. For example, it became difficult for therapists to attend the interdisciplinary NOP meetings where they would talk about new methodologies, and it became virtually impossible to seek resources from the organization because R&I had no funding to give and the administration had no extra FTEs to spare. Consequently, the reforms dramatically reduced the ability of therapists to move from experiential validation to evidential validation.

As discussed in the methodology, if both experiential and evidential validation are essential for individual experience to become organizational knowledge, and if the reforms took away several necessary parts of evidential validation, we reason that we would see more instances in which individual experience remained community knowledge after the reforms, as the reforms prevented the formation of organizational knowledge through evidential validation. Table 2.2 presents a matrix in which the activities of both experiential and evidential validation are arrayed into columns. The rows are split into 20 clinical
### Table 2.2
New methodologies and the two sub-processes of validation

<table>
<thead>
<tr>
<th>VALIDATION ACTIVITIES</th>
<th>EXPERIENTIAL VALIDATION</th>
<th>EVIDENTIAL VALIDATION</th>
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<tbody>
<tr>
<td></td>
<td>1 Discuss idea</td>
<td>2 Reflecting on</td>
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<td>experiences</td>
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<td></td>
<td>3 Providing guidelines</td>
<td>4 Sharing experiences</td>
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<td></td>
<td>5 Community knowing</td>
<td>6 Moving to the NOP</td>
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<td>9 From hypothesis</td>
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<td>to knowledge</td>
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<td>10 Formalization</td>
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<td>NEW METHODOLOGIES</td>
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<td>#1: Articulation app</td>
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<td>#2: Digital Diary</td>
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<td>#3: iBook</td>
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<td>#4: Video Interactive</td>
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<td>#5: LD Guide</td>
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<td>#6: Interactive Interpreter</td>
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<td>#7: Video 4 Reading</td>
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<td>#8: Phonology Pack</td>
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<td>#9: Visualization</td>
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<td>#10: Psycho-Ed-Book</td>
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<td>#11: ID Sign Language</td>
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<td>#12: ML Speech-Screening</td>
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<td>#13: SI Massage</td>
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<td>#14: BrainRest</td>
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<td>#15: CI Teachers</td>
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<td>#16: Autism Training</td>
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<td>#17: Confidence Presentation</td>
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<td>#18: Therapy Targets</td>
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<td>#19: Language Guide</td>
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<tr>
<td>#20: WellBeing</td>
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methodologies identified in the data that constitute new methodologies. Eleven methodologies were initiated before the reforms and nine were initiated after. A cell is marked with an “X” in the corresponding column when the relevant activity occurred.

Interestingly, it appears that the reforms had little affect on whether therapists were able to engage in activities that allowed them to connect and convince peers in their COP through experiential validation: therapists still continued to come up with new methodologies whenever they treated clients for which the existing methodologies did not seem to work well enough. But, because the reforms made it difficult to ask for resources and formally test and develop new methodologies, evidential validation was halted. Our interview with one of the professionals who was involved with granting resources and formalizing new methodologies explained that because of the reforms they could only provide resources to a very limited number of new methodologies. While other interviews regarding the autism-spectrum trainings indicated that therapists were interested in newer material, the project assistant explained that they simply cannot support evidential validation for that type of material:

So autism spectrum is of more or less out of the picture because we don’t get finance for that anymore. All material related to autism will be put on a much lower priority than material about, for example, deafness, blindness, or deaf & hard-of-hearing.

She explains that evidential validation was limited: the organization became more selective in what types of new methodologies they would provide resources for. Our data show that evidential validation was almost completely taken away, and hence it is not surprising that the numbers of “Xs” in the table is greater for the activities constituting evidential validation for methodologies that emerged before the reforms versus those that emerged after the reforms. While evidential validation was halted, experiential validation continued and allowed individual experiences to become community knowing.

When CareInstitute was able to provide resources allowing therapists to develop and test new methodologies, the NOPs could validate whether new methodologies were better or worse than the existing ones, and hence individual experience could be translated into organization knowledge. But when the infrastructure for evidential validation was removed, the individual therapists and their COPs still continued to develop new methodologies through experiential validation while it was no longer possible to create new organizational knowledge through evidential validation.
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Though clearly not a statistical test, Table 2.2 provides strong evidence linking the process of validation to the creation of organizational knowledge. Thus, while the organization needs evidential validation to turn individual experience into organizational knowledge, individuals and their COPs merely depend on their local experiential validation.

2.5. Discussion

This paper started by discussing that communities and networks of practice are concerned with different types of practice (Brown & Duguid, 1991; Brown & Duguid, 2001; Duguid, 2005). Building on a practice perspective on knowledge (Orlikowski, 2002; Feldman & Orlikowski, 2011; Nicolini, 2011), we theorize that since knowledge and practice are entwined, knowledge sharing across communities and networks becomes problematic. And given that COPs and NOPs are what stand between individual experience and organizational knowledge, we aimed to understand how organizations come to “know” what the individuals “know”. Existing research on knowledge in organizations has discussed that knowledge sharing across COPs and NOPs may be complex (e.g., Brown & Duguid, 2001; Duguid, 2005; Tagliaventi & Mattarelli, 2006; Feldman & Orlikowski, 2011; Tsoukas & Vladimirou, 2001) and the findings from this paper expand these studies by showing that knowledge sharing is complex because the knowing that is entwined with practice is shared across different types of practice. Building on our findings there are several implications for the literature on knowing and organizing.

2.5.1. Knowing through experiential and evidential validation

Our findings show that the ways individuals and their communities come to know is different compared to how NOPs and the organization come to know. Individuals are nested in their COPs, and because the members of a COP share the same situated practice, they share a continuum of knowing. To cross this continuum of knowing – to move from experience to knowledge – the members of a COP engage in a process of experiential validation, in which the experiences of a single actor can become community knowledge. By contrast, our findings then show that because the individuals within a NOP do not share the same situated practice, but rather an overlapping practice (Brown & Duguid, 2001), members of a NOP cannot build
upon the same shared situated practice and therefore need additional evidence before they can accept something as knowledge. Other than the experience-knowledge continuum of knowing of the COP and its members, the members of a NOP and the organization share a hypotheses-knowledge continuum of knowing. Our data from CareInstitute indicates that the therapists in the NOPs indeed required some evidence that, in their perception, proved that a certain new methodology worked. As we show, new methodologies that were “knowledge” for an individual therapist and her community first became hypotheses: the therapists of the NOP recognized some value but wanted evidence. To cross their continuum of knowing – to move from hypothesis to knowledge – the NOP involved the organization and engaged in a process of evidential validation, in which new methodologies that emerged as experience could become knowledge for members of the NOP and the organization.

Building on our findings, Figure 2.3 presents our theoretical model that depicts the two different continua of knowing and the two validation processes. The two different processes of validation are represented as ongoing wheels or cycles: as the actors move from experience to knowledge on their continuum, they move inward in the cycle, which is indicated by the thickening arrows. Through each interaction between the actors and their COP, their
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continuum of knowing moves slightly inward – from experience towards knowledge. And the same process applies to evidential validation: through interactions between the NOP(s) and the organization, their continuum of knowing incrementally moves inward – from hypothesis to knowledge.

These findings extend research that has highlighted the ways in which individuals work and learn through their situated practice (Tagliaventi & Mattarelli, 2006; Brown & Duguid, 1991; Orr, 1996) and that has showed that the creation of organizational knowledge is problematic when we consider knowledge to be inherently entangled with practice (e.g., Tsoukas & Vladimirou, 2001; Orlikowski, 2002; Feldman & Orlikowski, 2011). By drawing attention to the two contrasting continua of knowing, we elaborate current theory on knowledge in organizations. Without considering that COPs and their members come to know differently compared to how NOPs and organizations come to know, we continue to cast knowledge transfer from experience to knowledge a potentially impossible endeavor.

By considering the two continua of knowing future research can expand our understanding of the different ways that workers and administrators can create organizations where both experiential and evidential validation may prosper.

2.5.2. Individuals and their communities know together

A second implication of our study is that we found that the knowing of actors is mutually constitutive with the knowing of their community. Our data show that individuals come to know through interactions with their community. While the experience of one single actor does not constitute “knowledge” as something stable, through multiple iterative interactions with their community both the actors and the community come to know, as they are able to build upon a shared situated practice. The therapists in our study initially had a strong conviction that their methodologies worked (i.e., provided better care for their clients), and by interacting with peers in their COP they were both able to come to know. If their peers indicated they had positive experiences with the new methodology (by reflecting on their own experience and trying it in their own situated work) this was a strong signal for the therapists to continue to work with that methodology: it became community knowledge. Hence, individual knowing is interrelated with community knowing, and the process through which individuals come to “know” something is dependent on experiential validation.
Prior research has discussed that in communities actors are able to learn from each other because of their shared situated practice (Brown & Duguid, 1991; Orr, 1996) and has shown that members of communities may come to know collectively (Tagliaventi & Mattarelli, 2006; Pyrko et al., 2017). We expand the line of research on knowledge in COPs by not only showing that COPs are entities where actors collectively work, learn, and innovate (Brown & Duguid, 1991), but also by showing that the actors do not create new knowledge in isolation: the community and the individual create new knowledge through a symbiotic process of experiential validation. Through several cycles, the continuum of knowing of the individuals and their community incrementally moves from experience to knowledge. As we show that the knowing process between actors and their communities is mutually constitutive we emphasize the importance of having a shared situated practice, and we thereby reiterate the argument that practice is where knowing happens (Nicolini, 2011; Nicolini et al, 2003; Orlikowski, 2002; Feldman & Orlikowski, 2011).

2.5.3. Evidential validation for organizational knowledge

While experiential validation is necessary for moving from experience to knowledge, evidential validation is necessary to move from hypothesis to knowledge. The distinction between experiential validation and evidential validation thereby also adds to our understanding of why organizations have such difficulty with creating new knowledge (Argote & Miron-Spektor, 2011). In the process of experiential validation communities and their actors come to know by building on a shared experience within a shared situated practice. By contrast, members of NOPs and organizations do not share the same type of situated practice and therefore require evidence: they come to know through evidential validation. The organization and the NOP only “know” a new methodology when they are able to validate the methodology by (among others) testing the methodology. Hence, NOPs are the linking pin for individual experience to become organizational knowledge: members of the NOP triggered evidential validation, which is essential for the creation of new organizational knowledge. The reforms that CareInstitute faced also proved the necessity of evidential validation for organizational knowledge. While the individuals continued to develop new methodologies in their communities (through experiential validation), the NOPs and the organization could not develop new knowledge because the evidential validation
process was halted. Prior research has discussed the variety of difficulties that accompany the creation of organizational knowledge, and we extend this stream of research by showing that the reason why organizations often do not end up “knowing” is because they do not provide the infrastructure for evidential validation to take place. Leonardi and Bailey (2017: 35) for example showed the importance of some form of evidential validation: the offshore workers they studied used a “technology-enabled data-driven process of testing ideas” to convince upper management of the merits of their ideas. In our study, the therapists used the testing procedures as support to prove that their new methodology actually worked.

2.5.4. Necessity of slack resources

A final facet this study highlights is the importance of slack resources for professionals to validate their newly developed practices. Most importantly during the evidential validation process, the therapists had various resources at their disposal to prove whether their new methodologies worked in different contexts. The therapists had access to resources such as funding for provisional methodologies, additional hours, guidance by researchers and project managers, and the possibility to engage in interdisciplinary discussions to discuss pros and cons of new methodologies. Prior literature also suggests the importance of slack resources as they allow individuals to engage in more explorative activities that may benefit the organization (March, 1991; Nohria & Gulati, 1996; Drazin et al., 1999). Our study adds to this literature by showing that slack resources are not only needed for individual actors to flesh out or validate their ideas, but are similarly important for the creation of organizational knowledge. Without slack resources the evidential validation process comes to a halt, while experiential validation continues. Indeed, after the reforms the organization cut down on several important resources (e.g., funding and available time), and as a result we observed that new methodologies were still developed by therapists and their communities, but those methodologies could not be turned into organizational knowledge anymore.

2.5.5. Boundary conditions and suggestions for future research

The implications of our findings are applicable to organizations where workers are intrinsically motivated to continuously improve their practices and collectively work for a
common cause. At CareInstitute we continuously heard comments about how committed the therapists were to work for their specific group of clients, and they repeatedly indicated that they realized that their “current” knowledge was by no means definite: their field of expertise was continuously changing and they needed to stay up to date. Future work is necessary to show in which contexts this response is common. For example, in organizations where more emphasis is put on hierarchy, research suggests that freedom to innovate is much more difficult since actors are more engaged with politics and defending one’s jurisdictional turf (Anand, Gardner, & Morris, 2007). In organizations where knowledge development is praised, managers often already provide their employees with possibilities to engage in explorative activities (Sonenshein, 2014) and we reason that in such organizations both experiential and evidential are likely to be present in one way or another. Because CareInstitute is a medical organization, formally testing new methodologies may be an institutionalized process. It might be interesting to study what evidential validation looks like in other organizations where such processes are less institutionalized. Future work is needed to understand the varieties and boundaries of both experiential and evidential validation in different organizations, industries, and institutional environments.

An important limitation of this study is that we were not able to observe the actual work that the therapists conducted and hence our understanding of the work at CareInstitute comes from our interviews, observations, and organizational documents. While an ethnography would provide more nuanced information about the work conducted by the therapists, we argue in line with Orlikowski (2002: 255) and Giddens (1984) that these reflexive accounts provided us with a thorough understanding of the work of the therapists. Hence we are confident that our findings provide a detailed and valid account of how experiential and evidential validation are necessary processes for individual experience to become organizational knowledge. We suggest future research to study if there are additional intricacies to the validation process.