# MIND THE GAP:
# BUILDING BRIDGES IN INTERPROFESSIONAL TEAMS

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*Dedicated to my beloved children,*

*Celine Madelén,*

*David Nathaniel,*

*&*

*Emily Victoria*

*for your endless love, support, and encouragement.*

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Elisabeth Andvik
Bergen, December 2021

"It is impossible to begin to learn that which one thinks one already knows"

- Epictetus

# CONTENTS

# ABSTRACT

Interprofessional collaboration is gaining traction as an increasingly promoted mechanism to respond to the pressures and demands of exceedingly complex and ill-structured problems in society. Indeed, these unprecedented times have impacted macro, meso, and microstructures globally, nationally, and locally, which has underscored the centrality of effective collaboration. In health care, interprofessional collaboration is championed as a solution to problems of an international scarcity of clinicians, increased consumerism, and the maldistribution of health resources. Accordingly, care delivery processes are being redesigned around the needs of patients, rather than around medical disciplines. This is based on the presumed premise that bridging diverse knowledge domains and practices through interdependent working enhances complex problem solving and improves quality of care.

However, merely combining professionals with complementary competencies does not guarantee effective collaboration. Structural and social forces in interprofessional teamwork challenge well-established professional demarcations, blur roles, and threaten professional identities, resulting in tensions. Further, incommensurability in knowledge perspectives and practices due to distinct epistemic cultures may undermine collaboration from the very onset of teamwork. Indeed, we lack a thorough understanding of the processual nature of interprofessional collaboration and the mechanisms that sustain it over time.

This dissertation explores how interprofessional collaboration unfolds and the mechanisms that sustain collaboration. Through an ethnographic study undertaken between 2018 and 2021, I followed eight interprofessional teams tasked with solving complex chronic conditions in children at a regional Norwegian hospital. The context of psychosomatic care is particularly compelling for examining the phenomenon of interprofessional collaboration, as these practices predominantly operate in silos. Comprehensive data were collected, comprising mainly in-depth semi-structured interviews and observations. A grounded theory approach was utilized to nuance and extend the literature on interprofessional collaboration.

My PhD project has three key findings: (1) the archetypes of initial interactions and how they influence teams' processes and performance outcomes; (2) how professionals free themselves from the straitjacket of their professional identity and advance their identity

repertoires, and; (3) how the dynamic process of knowledge transformation unfolds and how the interplay between boundary strategies influences this process.

Thus, I contribute to the field of interprofessional collaboration by providing a more nuanced and situated understanding of how interprofessional collaboration unfolds, illuminating the journey from interprofessional to transprofessional collaboration. In addition, I identified three core mechanisms that sustain interprofessional collaboration.

First, I combined the literature on team development, team interaction patterns, and complex problem solving, developing a typology of four initial interaction archetypes and their trajectory. This demonstrates the power of initial interaction patterns in interprofessional teams and provides a deeper understanding of how to foster favorable conditions from the onset.

Second, I linked the literature on professions with identity work and identity play, developing the "Identity Plasticity Model." Doing so, I answered calls for a more processual and situated understanding of how professional identity reconstruction occurs in interprofessional teams. Thereby, I provided insights into the enabling mechanisms that boost progression in identity reconstruction, which offers directions for education and training on how to cultivate a mindset of identity plasticity.

Third, by combining the literature on professions, knowledge, and boundary work, I illuminated the insufficiently understood process of knowledge transformation in interprofessional teams. Additionally, I revealed the interplay between three distinct boundary strategies and their implications on boundary permeability. Consequently, I offer specific insights for practice regarding distinct boundary-crossing activities.

Indeed, my findings enrich current academic debates concerning team science and the literature on professions, identity, knowledge, and boundaries. Certainly, this research also provide new directions for research to extend our understanding of how to build bridges in interprofessional teams.

*Keyword*: interprofessional collaboration, teams, professions, collaboration, initial interaction patterns, professional identity, boundary, health care

# INTRODUCTORY CHAPTER

# 1.  Introduction

**Psychologist (PS₁):** This has been one of the most meaningful, yet difficult, experiences of my career. Collaborating is not an easy endeavor, and our cases are extremely difficult. The whole experience has been like a roller-coaster ride. We have moved in blindness, without any maps to guide our path. We are pioneering the future of healthcare services.

**Medical Doctor (MD₁):** Instead of being named "services across disciplines," we should be called "services gone mad!" It is like we are swimming in deep currents or diving from a cliff, not knowing whether there is any water under us, or if we will hit the rocky sea floor.

## *1.1. Background*

There is an increased reliance on teamwork to tackle unpredictable and complex work environments in society (Goldman & Xyrichis, 2020; Xyrichis & Ross, 2019). In health care, international scarcity of clinicians and the maldistribution of healthcare services as a consequence of increased costs and consumerism (Pascucci et al., 2021), exerts considerable pressures to reduce economic inefficiencies (Liberati et al., 2016). Thus, interprofessional collaboration has been endorsed internationally as a central solution to improve service delivery and patient outcomes, and to resolve service and sectorial gaps (Briggs et al., 2020; Drinka & Clark, 2016; Goldman & Xyrichis, 2020; Thistlethwaite et al., 2013).Accordingly, global  directives (World Health Organization, 2016), training and education programs (Jones et al., 2020; Lackie et al., 2020), along with local incentives (Norwegian Ministry of Health Care Services, 2009), advocate the redesign of health care to more holistic-centered approaches. Indeed, bridging complementary competencies through interdependent collaboration between professionals' merits hope of generating more effective coordination and problem solving. Consequently, hospitals around the world are following initiatives by the WHO (2015) to implement interprofessional teams (Xyrichis, 2020, p. 3), which is driving the path of health care in a more sustainable direction (Goldman & Xyrichis, 2020; Lackie et al., 2020).

However, interprofessional collaboration in health care often fails to be effectively translated to practice (Ahgren, 2014; Holum, 2012; Hudson, 2007; Lega & DePietro, 2005; Liberati et al., 2015; Proenca, 2007). This has sparked academic interest into why interprofessional collaboration remains such an elusive ideal (Bucher et al., 2016; Liberati, 2017; Liberati et al., 2016). Indeed, the quotes from my informants above illustrate the complex journey of building bridges in interprofessional teams.

Notably, interprofessional collaboration obscures traditional lines of demarcation by prompting the development of new roles and modes of working (Hazgui & Gendron, 2015; Huq et al., 2017; MacNaughton et al., 2013). However, professionalization has constructed robust professional identities (Pratt et al., 2006; Scott, 2008) and construed professional boundaries that delineate professionals' scope of practice (Abbott, 1988; Freidson, 1986). Thus, altering these demarcations threatens professional identities (McNeil et al., 2013; Mitchell et al., 2011; Reay et al., 2017) and challenges established inter-/intra-professional relationships (Comeau-Vallée & Langley, 2020; Mørk et al., 2010), leading to contestation about collaboration (Barrett & Oborn, 2010; Bucher et al., 2016; Huq et al., 2017; Lindberg et al., 2017; Reay et al., 2017).

While these barriers are amenable to change, there is certainly the need for research that will elucidate the process by which interprofessional collaboration unfolds over time (Kislov et al., 2021; Langley et al., 2019; Liberati, 2017; Nembhard et al., 2020; Reeves et al., 2018; Xyrichis, 2020). Particularly, the mechanisms that sustain collaboration are not sufficiently understood (Kislov, Harvey, et al., 2021; Pyrko et al., 2017; Tagliaventi & Mattarelli, 2013; Tasselli, 2015; Yeo, 2020).

Certainly, these "unprecedented times" of complexity and urgency concerning an effective response to the COVID-19 pandemic underscores the need to better understand the mechanisms that sustain rapid and well-coordinated responses in interprofessional

teams (Goldman & Xyrichis, 2020; Lackie et al., 2020; Natale et al., 2020). The sudden shift in technology toward remote and virtual working in light of social distancing policies has impacted micro, meso, and macro levels in society (Barrett et al., 2012; Lindberg et al., 2019), redefining the meaning of "connectivity" (Unsworth, 2020). Surely, political signals in the media have strengthened the centrality of collaboration through indicators such as "We are all in this together." In response, there has been a global surge in volunteering to assist with essential services (United Nations, 2021), demonstrating exceptional solidarity and collaborative values (Welsh, 2020). Further, technological innovations have enabled accessible and reliable opportunities for connectivity (Barley, 1986; Burri, 2008; Kislov et al., 2021; Langley et al., 2019; Tume et al., 2020), which have in turn provided new means of coordination and collaboration across time and space (Hafermalz & Riemer, 2020; Kolb et al., 2020).

Moreover, the pandemic has led to abrupt suspensions in professional boundaries, as professionals pragmatically flex jurisdictions and adapt techniques beyond their scope of practice to accommodate current clinical needs (Breitbach et al., 2020; El-Awaisi et al., 2020; Hales et al., 2020; Jenkins et al., 2020; Natale et al., 2020; Nyashanu et al., 2020; Xyrichis & Williams, 2020). Nonetheless, these changes have led to experiences of anxiety and to the perceived need to shield professional responsibilities (Nyashanu et al., 2020).

Indeed, recent events have impacted the nature of collaborative interactions across the globe (Tanne et al., 2020), affording interprofessional collaboration a renewed focus (Hales et al., 2020; Natale et al., 2020; Tanne et al., 2020; Tume et al., 2020; Xyrichis & Williams, 2020). Collectively, these recent changes raise questions about the sustainability of professional boundaries and identities in interprofessional teamwork (Goldman & Xyrichis, 2020). However, the process of how professional identities are

reconstructed in interprofessional teamwork is insufficiently understood (Best & Williams, 2019; Bèvort & Suddaby, 2016; Kyratsis et al., 2017; Martin et al., 2009; Reay et al., 2017; Tong et al., 2020). Furthermore, we lack a thorough understanding of how knowing in practice is transformed across boundaries in interprofessional teams (Croft & Currie, 2016; Yeo, 2020). Notably, we also need a deeper understanding of how boundary strategies influence knowledge transformation (Comeau-Vallée & Langley, 2020; Dibble & Gibson, 2018; Langley et al., 2019; Schot et al., 2020).

Moreover, many interprofessional teams fail to collaborate from the planning stage (Contandripoulos et al., 2015). While previous literature has shown that early actions have considerable effects on future performance, we lack understanding of the initial interaction patterns in interprofessional teams (Gersick & Hackman, 1990; Ginette, 1986; Uitdewilligen et al., 2018; Zijlstra et al., 2012). Certainly, these issues emphasize the salience of a deeper understanding of the mechanisms that may help build bridges in interprofessional teams to sustain collaboration.

### *1.2. Research Aims*

The topic of interprofessional collaboration were explored through three empirical studies that drew insights from an ethnography conducted at a pediatric clinic at a regional Norwegian hospital, where eight interprofessional teams were deployed to solve diagnostic mysteries in children.

My research aim was to advance our understanding of how interprofessional collaboration unfolds over time and to identify mechanisms that sustain collaboration. Based on my interactions and the experiences I encountered during this ethnographic research, I developed more focused objectives in each of the three papers in this dissertation. This is in line with recommendations by Ybema et al. (2009), underscoring the necessity for contextually situated and responsive research questions. Accordingly,

the broad research aims gave rise to three interrelated research objectives, which highlighted the process and mechanisms of sustaining interprofessional collaboration.

(1) Explore the characteristics of the initial interaction patterns of interprofessional teams and their link to teams' processes and performance outcomes.

(2) Explore how professionals' identities are reconstructed in interprofessional teams.

(3) Explore how knowing in practice[1] is transformed across knowledge boundaries and determine the influence of boundary strategies on this process.

## *1.3. Contributions and Implications*

Overall, this dissertation provides two original contributions to the literature on interprofessional collaboration. First, I extend and enrich insights into the processual nature of interprofessional collaboration through an in-depth exploration of how professionals themselves shape collaboration, which is a currently underexplored perspective (Bourgeault & Mulvale, 2006; Nugus et al., 2010; Xyrichis, 2020). More specifically, my dissertation delineates the journey from interprofessional to transprofessional collaboration, where teams transcend boundaries to create a unified practice in which their competencies become mutually interchangeable. Hence, my work extends that of Thylefors (2005) concerning movement along the continuum from interprofessional to transprofessional collaboration.

Second, in contrast to studies that commonly demonstrate how contestation impedes interprofessional collaboration (Bucher et al., 2016; Hall, 2005; Liberati et al.,

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[1] In the literature, we can find branches of research that have different epistemologies of knowledge. On the one hand, we have the epistemology of possession (Cook & Brown, 1999), which considers knowledge as something we possess, and as relatively context-free. In contrast, practice-based approaches consider knowledge as something we do (epistemology of practice) and underscore how knowledge and practice, knowing in practice (Nicolini et al., 2003; Orlikowski, 2002), will always be socially, culturally, and historically situated.

2016), my dissertation accentuates core mechanisms that determine how interprofessional collaboration successfully sustains over time.

More specifically, the first study emphasizes why interprofessional teams are indeed sensitive to initial conditions. While the literature on team development has suggested that initial interactions have profound impacts on team performance (Ericken & Dyer, 2004; Gersick, 1988), my dissertation extends this literature by delineating the characteristics of initial interactions Further, I extend the literature on team interaction patterns (Stachowski et al., 2009; Uitdewilligen et al., 2018; Zijlstra et al., 2012) and complex problem solving (Dörner & Funke, 2017; Funke & Frensch, 2007) by combining this literature to develop a typology of four initial archetypes and systematically linking these archetypes to teams' processes and performance outcomes. These findings nuance the literature on interprofessional teams, by illuminating how teams foster favorable conditions from the onset of teamwork by adapting an "adventurer" archetype. Thus, the typology has important implications for teams and managers in that it can be used to implement guidelines and training that promote an "adventurer" start to teamwork, in turn counteracting the inherent challenges posed by "autopilot thinking."

The second study elucidates the unfolding process of reconstructing professional identities over time. Doing so answers calls for a situated and temporal understanding of professional identity reconstruction in interprofessional teams (Best & Williams, 2019; Bèvort & Suddaby, 2016; Lepisto et al., 2015; Reay et al., 2017; Stanko et al., 2020; Tong et al., 2020). By combining the literature on identity work (Pratt et al., 2006; Svenningsson & Alvesson, 2003) and identity play (Ibarra & Petriglieri, 2010; Stanko et al., 2020), my dissertation provides insights into the plastic nature of professional identities through the development of the "Identity Plasticity Model." This model highlights how courage, vulnerability, and flexibility are crucial in boosting advancement

in professional identity repertoires. Concurrently, the model sheds light on variances in the pace of identity reconstruction among professionals. Thus, my dissertation answers the call by Lepisto (2015) to link the literature on professions (Abbott, 1988; Freidson, 1970) to identity (Ibarra & Petriglieri, 2010; Pratt, 2012; Svenningsson & Alvesson, 2003). In doing so, I reveal how professional identities and interprofessional identities are linked, which is currently an elusive topic (Tong et al., 2020). Accordingly, this demonstrates how interprofessional teams may overcome the barriers of role blurring (Brown et al., 2000; Hazgui & Gendron, 2015) that create tensions at the interface between professional identities (Abbott, 1988; Liberati, 2017; Liberati et al., 2016; McNeil et al., 2013). Thus, my findings may provide guidance for educators and managers on activities (e.g., role play and work rotations) that may help cultivate identity plasticity.

In the third study, I illuminate the process of transforming knowing in practice across knowledge boundaries. Surmounting knowledge boundaries is recognized as the central challenge in interprofessional teams, yet the process of how knowing in practice is translated into practice is currently insufficiently understood (Edmondson & Harvey, 2018; Gabbay et al., 2020; Majchrzak et al., 2012; Mørk et al., 2008; Oborn & Dawson, 2010; Pyrko et al., 2017; Srikanth et al., 2016; Yeo, 2020). My findings additionally extend the boundary work literature (Langley et al., 2019) by illuminating the intersectionality of boundaries in interprofessional teams, which is currently underexplored (Dey & Ganesh, 2017; Kislov, Harvey, et al., 2021; Reay et al., 2017). I highlight two boundary-crossing activities - joint consultations and team reflexivity - that facilitate "boundary rebelling," which enhances boundary permeability. My findings additionally outline variations in the use of boundary strategies across professions. These findings have implications for practice in countering uni-professional work patterns and

reducing tribalism by implementing boundary-crossing activities that can help bridge knowing in practice.

These findings are particularly salient in the highly institutionalized context of health care, where diverse practices are deeply embedded and may contradict each other (Mørk et al., 2008, 2010; Reay et al., 2017; Rosen et al., 2018). Consequently, this may provide practical guidance for developing new clinical guidelines to improve patient care and inform both policy and interprofessional educators on distinct mechanisms that may sustain interprofessional collaboration.

### *1.4. Structure of the Introductory Chapter*

This section provides an overview of how the remainder of the introductory chapter is structured. *Section 2* encompasses the theoretical background, positioning of the study in the context of interprofessional collaboration, and a summary. The research methodology is outlined in *section 3*, where I present an overview of my ontological and epistemological stance. Next, I provide a rationale for why an explorative ethnography was chosen and elucidate the contextual underpinnings of my chosen research site. Subsequently, I outline the methodological techniques used to obtain insights into the subjective experiences of informants before I provide an overview of the data collection and analytical strategies used to develop grounded theory. *Section 4* presents a summary of the interrelated research articles, situating the findings within the contemporary and adjacent literature on interprofessional teams. In *section 5*, I discuss the findings, present the theoretical contributions, practical implications, the limitations of this research, as well as recommendations for future research. *Section 6* encompasses concluding remarks. Finally, the three empirical articles follow as individual chapters, which together with this introductory chapter constitute the full dissertation.

## 2.  Theoretical Background and Positioning of the Study

**Medical Doctor (MD₂):** Literature can only take you so far… The distance between literature and practice can be overwhelming and difficult to comprehend.

This section comprises six parts that provide a theoretical background on interprofessional collaboration. First, I outline the development and drivers of interprofessional collaboration internationally and locally in Norway. Second, I provide a description of the terminology and models of interprofessional collaboration. Third, I give an overview of the sociology of professions to explicate how healthcare professionals and, consequently, knowledge practice is shaped to yield an essential background of the context. Fourth, I highlight the benefits and barriers, as well as a critique, of interprofessional collaboration. Finally, I position the study and identify relevant research gaps to which my dissertation contributes.

### 2.1. Drivers of Interprofessional Collaboration

This part situates the emergence of interprofessional collaboration, highlighting the drivers that have initiated the proliferation of this phenomenon, particularly within the context of health care.

Organizations are relying more heavily on teamwork to respond to increasingly complex and knowledge-intensive tasks (Kislov et al., 2021; Maynard et al., 2015; Rosen et al., 2011; Santos et al., 2016). In health care, interprofessional collaboration is gaining considerable traction (Hughes et al., 2016). The concept of interprofessional collaboration first arose in the literature in 1967 (Reeves, Lewin, et al., 2010). It was promoted as a means to meet the demands of increased complexity in contemporary work environments and to improve patient outcomes through service integration (Meads & Ashcroft, 2008; Pomare et al., 2020; Saba et al., 2012; Van Der Vegt et al., 2005). While recognizing the shortcomings of traditional fragmented healthcare systems (Reeves et al., 2017),

interprofessional collaboration did not translate to practice until 1990 (Pollard et al., 2005), gaining popularity predominantly in Australia and Canada (Reeves, Lewin, et al., 2010). Nonetheless, recent political, social, and economic developments emerging within the past two decades have collectively sparked the drive for interprofessional collaboration (Goldman & Xyrichis, 2020; Paradis et al., 2014; Paradis & Reeves, 2013).

In health care, the central global drivers for interprofessional collaboration concern increased consumerism (e.g., a growing elderly population (Dixon-Woods et al., 2011; Exworthy, 2015) and rising costs in healthcare services (Xyrichis, 2020). In Norway, public spending on the healthcare sector is among the highest worldwide, accounting for 342 billion NOK (SSB, 2020), which represents 9.8% of the country's GNP (OECD, 2020) (Figure 1).

**Figure 1.** Health Expenditure (% of GDP)
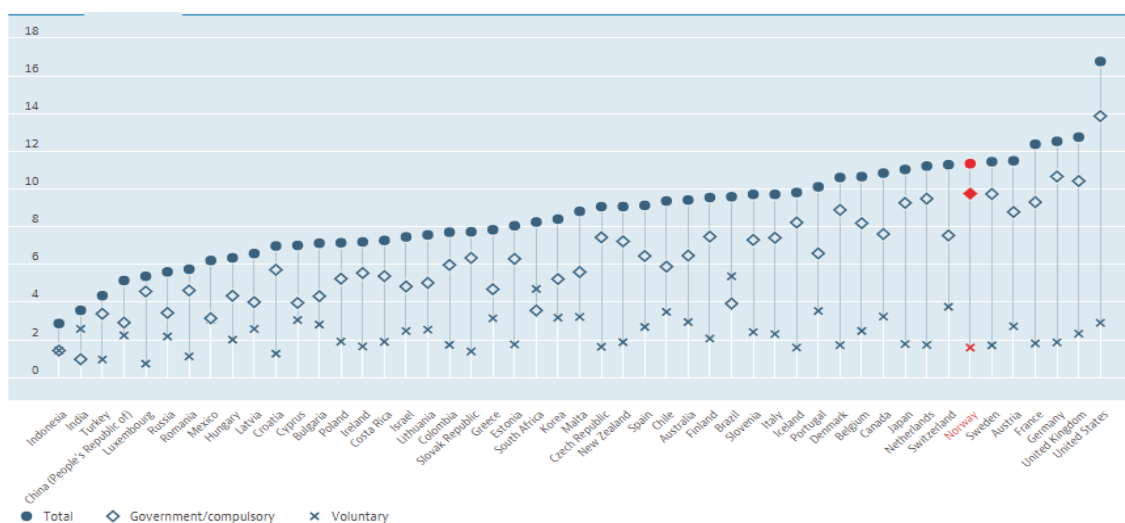


The cost of healthcare services is particularly related to the increased prevalence and expense of chronic care management (Doessing & Burau, 2015; McPhail, 2016; Merode et al., 2018; Oxman et al., 2008; Pascucci et al., 2021; Raine et al., 2014; Schaefer & Davis, 2004). Chronic care necessitates tight coordination between several highly specialized professions across disciplines (Elgen et al., 2021; Heggestad et al., 2020;

Lygre et al., 2020; Meads & Ashcroft, 2008) to prevent medical errors that jeopardizes the quality of care (Alvarez & Coiera., 2006; Miller, 2005; Risser & Lewin, 2004). However, traditional health care is structured around discipline-based specialization (Lega & DePietro, 2005; Plochg et al., 2017; Vera & Kuntz, 2007). This has led to fragmentation and duplicative single-disease approaches that tend to view symptoms in isolation (Byrnes et al., 2012). The coordination requirements between specialized healthcare services therefore present major resource allocation challenges (Boyd et al., 2014; Doessing & Burau, 2015; Grumbach & Bodenheimer, 2004; McPhail, 2016; Merode et al., 2018; Wagner, 2000). Failing to adequately address such challenges is considered a core cause of the international scarcity in clinicians and maldistribution of resources (Byrnes et al., 2012; Kislov, Burns, et al., 2021; Liberati et al., 2016; Xyrichis et al., 2019).

Thus, public management is questioning the ability of the healthcare sector to prioritize tasks and manage resources efficiently. Recently, there has been a shift toward a more holistic biopsychological care perspective, one that recognizes that mental and physical health are interwoven (Shortell et al., 2015). In addition, the agency of patients is changing, as their responsibility and empowerment are being extended (Chung et al., 2012; Drinka & Clark, 2016).

Furthermore, corporate funding and the increased privatization of health services have altered the economic environment. Additionally, there has been recent technological advances (Barley, 1986; Barrett et al., 2012; Burri, 2008; Lindberg et al., 2019) and innovations (Kislov, Burns, et al., 2021; Mørk et al., 2012), such as the transition of health journals to an electronic format, automation and robotics advancements, as well as artificial intelligence (Kislov, Burns, et al., 2021; Tume et al., 2020). Such tremendous technological progress have led to speedier adoption of scientific policies, and has

provided new means to collaborate across time and space (Hafermalz & Riemer, 2020; Kolb et al., 2020).

International policy initiatives and agencies advocate for principles of interprofessional collaboration, with the former working on implementing universal healthcare coverage (Lê et al., 2016; WHO, 2016) that will alter the landscape of health care. In Norway, strong political will and significant efforts are being directed at financing and implementing policies to support interprofessional collaboration (Blacker & Deveau, 2010). Since the Coordination Reform was implemented in Norway in 2012 (Norwegian Ministry of Health Care Services, 2009), various public incentives and strategies for collaborative care interventions have been provided.

Furthermore, the call for care coordination is additionally arising from a professional concern - the threat of increasing specialization in medicine[2] (Pomare et al., 2020). However, hospitals tend to be organized in department clinics according to professionals who claim the rights and authority of specific scopes of practice, such as managing specific disease categories and affiliated technology. Yet, a shortage of physicians along with the emergence of new specialties (e.g., generic healthcare workers) have led to shifts in professional and disciplinary tasks (WHO, 2015).

Unfortunately, teamwork training and insights into the competences of professional counterparts have generally been left out of the qualifications and socialization of professionals (Barr et al., 2005; Reeves, Zwarenstein, et al., 2008; Spaulding et al., 2021). However, fortunately, interprofessional education is expanding, conceding the accreditation by the Lancet Commission of health professional education (Bainbridge & Ourkis, 2011; Frenk et al., 2010), providing accusation of competencies

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[2] There are 46 approved specialties in Norway, 40 of which are listed in the Directive of the Council of the European Union (EU) (Norwegian Medical Association, 2020).

necessary for interprofessional collaboration (Reeves, Goldman, et al., 2010). The objective is to break down silos between health professions and to prepare for team-based care delivery, by promoting values of equality and working toward ending cultural hierarchies (Jones et al., 2020; McLaughlin, 2012). These principles aid in ensuring clear parameters for collaboration (e.g., learning with, from, and about each other) (Hammick et al., 2009; Thistlewaite & Vlasses, 2021), by training professionals to take into consideration the diversity of competencies and paradigms (Robinson & Cottrell, 2005).

Last, but no less important, recent epidemiological demands have underscored the need for interprofessional collaboration (Goldman & Xyrichis, 2020; Sy et al., 2020). Collectively, these issues are driving the emergence of a paradigm shift into holistic-centered integrated care approaches (Baldwin & DeWitt, 2007; Fay et al., 2006; Hughes et al., 2016; Kislov, Burns, et al., 2021; Manser et al., 2009; Saba et al., 2012). Consequently, hospitals around the globe (Baker et al., 2006; McKee & Healy, 2002) are increasingly following initiatives from the WHO (2010) (Baker et al., 2006; Cameron & Lart, 2003; Kislov et al., 2021; Lega & DePietro, 2005; McKee & Healy, 2002) to centralize management resources and organizational structures around the needs of the patient rather than around medical disciplines (Liberati et al., 2015). The transition from conventional care to collaborative care is demonstrated in Figure 2.

**Figure 2.** Differences between Conventional Care and Collaborative Care Models
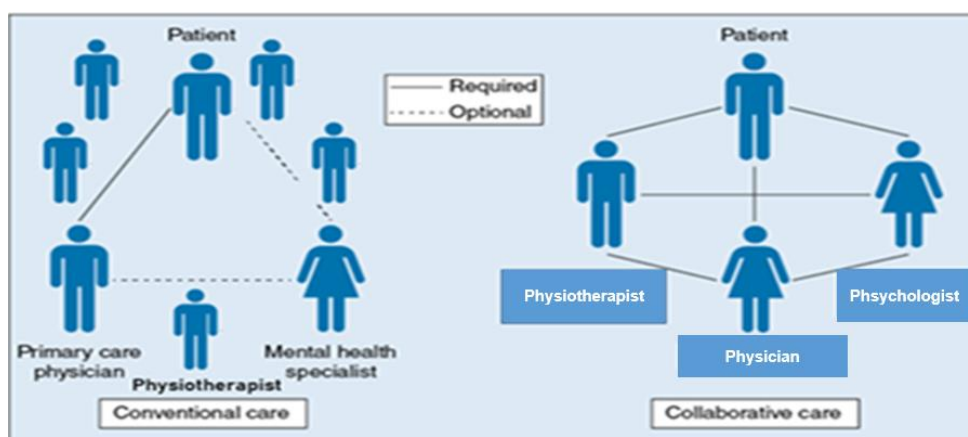
Nonetheless, the existence of policy directives exhorting professionals to engage in collaboration with other professionals across disciplines does not necessarily translate to effective practice (Cameron, 2016; Hudson, 2002, 2007; Proenca, 2007; Tazzyman et al., 2021; Wye et al., 2015). In Norway, interprofessional initiatives have thus far had minimal impact and received limited attention (Ahgren, 2014; Holum, 2012; Romøren et al., 2011). Teamwork and interprofessional practice are subject to local interpretation (Klarare et al., 2013) and individual discretion (Hudson, 2002). However, health policies are often not conscious of the underlying professional differences (Kitto et al., 2011) that impede interprofessional teams from achieving desired outcomes (Dinh et al., 2020; Körner et al., 2016; Pomare et al., 2020; Xyrichis, 2020). Thus, resolving gaps related to how tensions at the interface of interprofessional collaboration can better be managed continues to be a global priority for health service managers, policy makers, and governments (Liberati et al., 2016).

## 2.2. Defining the Concept of Interprofessional Collaboration

Interprofessional collaboration is a heterogeneous and fragmented term (Boon et al., 2009; Dow et al., 2017; Manser et al., 2009). I searched across databases (e.g., Medline, Cochrane Library, PubMed, EBSCO, PsychINFO, and SCOPUS) to find a term that was contextually appropriate to my own study and came across a multitude of definitions. Leathard (2003, p. 5) addressed the conceptual imprecision of "interprofessional collaboration" as a "terminological quagmire" nearly two decades ago. However, it continues to be used interchangeably with adjacent terms to describe a wide range of interactions and interpersonal relationships between different practitioners (D'Amour et al., 2008; Gaboury et al., 2009; Lethard, 2003; Martìn-Rodrìguez et al., 2005; Oelke et al., 2013; Perrier et al., 2016; Reeves et al., 2011; Thistlethwaite et al., 2013; Thylefors, 2007).

In particular, the conceptual boundaries surrounding the construct remain ambiguous (McLaughlin, 2012; Perrier et al., 2016; Reeves et al., 2011). Consequently, the fragmented and multifaceted nature of interprofessional collaboration impedes our ability to pinpoint the effects of various means of collaboration (Lethard, 2009; Perrier et al., 2016; Reeves et al., 2011; Xyrichis & Lowton, 2008a). Accordingly, interprofessional collaboration continues to be slow and unreliable, "in danger of being refined as a self-evident virtue in need of neither justification nor critical review" (Xyrichis & Ream, 2008, p. 11).

Fortunately, several systematic and bibliometric reviews provide lucidity on the "semantic quagmire", highlighting detectable connotations and commonalities across definitions of interprofessional collaboration (Dietz et al., 2014; Hood et al., 2016; Lethard, 2003; Martìn-Rodrìguez et al., 2005; Nancarrow et al., 2013; Paradis et al., 2014; Paradis & Reeves, 2013; Perrier et al., 2016, 2016; Scholes & Vaughan, 2002; Schot et al., 2020; Xyrichis et al., 2019; Xyrichis & Ream, 2008). These reviews have shown that the term varies according to the context in which it is deployed, the number of professionals involved, and the kinds of problems it aims to address (Xyrichis et al., 2019).

More specifically, in describing teams, various prefixes (intra-, inter-, multi-, cross-, and trans-) are often employed interchangeably and in seemingly endless permutations with corresponding adjectives (professional, disciplinary, or functional) (Perrier et al., 2016). In addition, there is confusion regarding different kinds of interprofessional work activities[3] (e.g., collaboration, teamwork, coordination, network) (Xyrichis et al., 2019). Each of these various combinations reflects the history of the

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[3] Collaboration is further distinguished from cooperation and coordination based on the temporal stage and the type of goal (Castañer & Oliveira, 2020).

professions and agencies involved, as well as the overarching government policy (Pollard et al., 2005).

To achieve greater clarity, I reviewed the terms most salient to the phenomenon to distinguish various forms of collaboration in a healthcare context. First, I distinguished between the terms "professional" and "discipline." According to Freidson (2001a), "disciplines" refer to specific knowledge domains (e.g., medicine) that function to describe, explain, and predict key phenomena. In contrast, "professions" refer to specialized fields of practice (linked to an occupation) that are founded on the theoretical structure of a science and are tightly regulated by governing bodies (e.g., physicians). Accordingly, the term "disciplinary" is used if the team members' knowledge domain resides within the same discipline, whereas "professional" is employed if their knowledge domain spans a variety of practice fields (MacIntosh & McCormack, 2001).

Second, the prefixes "intra," "multi," "inter," and "trans" refer to the nature or intensity of the collaboration (Kuehn, 2004). Thylefors (2007) distinguished this intensity (Figure 3) on a spectrum from low intensity (non-integration) to high intensity (full integration), where the degree of interdependence increases along the continuum.

**Figure 3.** Spectrum of Teamwork Collaboration (Thylefors, 2007)
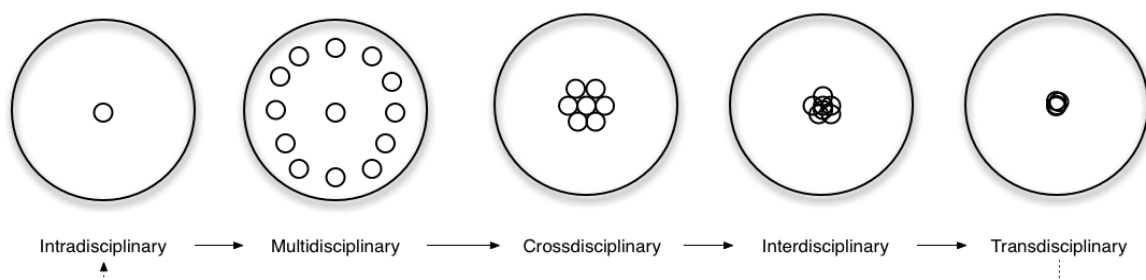


Hence, whereas "*intra*" disciplinary collaboration designates collaboration within a single discipline, "*intra*" professional collaboration denotes collaboration within a single profession. In contrast, "*multi*" disciplinary refers to different disciplines working on a

problem in parallel or sequentially while remaining within their own disciplinary boundaries (Axelsson & Axelsson, 2009; Scholes & Vaughan, 2002; Sheehan et al., 2007). Similarly, "*multi*" professional collaboration describes the work of professionals alongside each other and, for the most part, independent of each other. The focus remains on the task rather than on the collaborative process, and patients are therefore approached from separate perspectives, with appointments between specialties being merely coordinated. Accordingly, each contribution stands alone and may be performed without input from others (Thylefors et al., 2005). Nonetheless, such contributions provide a more optimal care provision than disciplines acting in isolation (Jessup, 2007).

"Cross" disciplinary describes teams that work across various disciplines. It is often used interchangeably with "cross" functional (Van Veen-Berx et al., 2015) or "cross" boundary (Gums et al., 2014). These terms commonly describe novel forms of teamwork pertaining to collaboration across organizational and sectoral boundaries (Kerissey et al., 2020; Kerrissey et al., 2021), recently associated with "teaming" (Edmondson & Harvey, 2018).

"Inter" disciplinary involves interactive efforts and contributions between health professions that typically circulate within the same discipline irrespective of occupational profession (Nancarrow et al., 2013), thereby sustaining restrictions on boundary extensions (Sicotte et al., 2002). Accordingly, professionals make decisions within their own scope of practice, yet within the broader context of information sharing by each professional in collective meetings. Leadership and decision authority tends to be preserved the physician. In contrast, "interprofessional collaboration" is perceived to be indicative of a more integrated range of interactions, denoting overlaps between scientific fields. This term depicts disparate professionals with complementary specialties who are mutually accountable for providing holistic care, in which planning and evaluation are

undertaken jointly and synergistically (McCallin, 2001; Mitchell et al., 2010; Sheehan et al., 2007; Thylefors et al., 2005). Accordingly, teams integrate separate expertise and approaches into a single collective consultation, one in which patients are empowered to actively participate.

"Trans" denotes a holistic collaboration between different disciplines that transcends disciplinary boundaries (Thylefors et al., 2005). Accordingly, teams rely on integrative work processes in which professional boundaries are partly dissolved, representing a unified practice approach. Thus, the distinctions between the separate professions disappear, and competencies are mutually interchangeable. According to Thylerfors (2005), the following characteristics are attributable to a trans- approach: role extension (increase in discipline-specific knowledge), role enrichment (incorporating the knowledge of other disciplines), role expansion (transmitting one's own expertise to other team members), role release (blurring of traditional disciplinary boundaries), and role support (feedback to and from others in the implementation of skills).

Forsetlund et al. (2019) conducted a scoping review on the development of the various terms described above and their prevalence over the years. As shown in Figure 4, "multidisciplinary" is the most commonly used term (14,463), followed by "interdisciplinary" (3,507), "health care team" (2,053), "primary care team" (1,213), and "interprofessional" (1,062).

**Figure 4.** Overview of the Development of Teamwork Terms and Their Prevalence
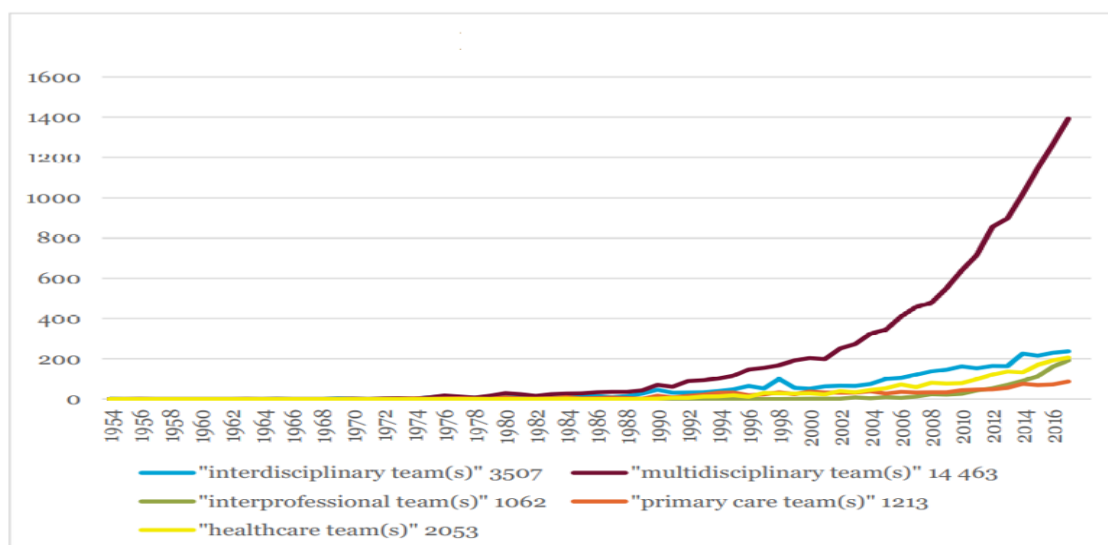


*Note:* The following are the Norwegian translations of the English teamwork terms: "multidisciplinary" = flerfaglig samarbeid; "interdisciplinary" = tverrfaglig samarbeid; "interprofessional" = tverrprofesjonelt samarbeid.

Chamberlain-Salaun et al. (2013) noted that some studies have emphasized structural components (who participates in the team), while others have focused on processes (how the team functions and collaborates). Nevertheless, the diversity of teamwork terms and definitions has given rise to numerous models of collaborative care, which differ based on contextual factors, intra-group processes, the nature of tasks, and the intensity of collaboration between the professionals (Reeves et al., 2011; Stokes et al., 2016).

In my research, all informants belonged to defined health professions, regulated by codes of professional conduct and knowledge domains that occupy disparate disciplines. Thus, the term interprofessional was determined to be the most appropriate. Still, the varying definitions of interprofessional collaboration are inconsistent in the literature. One commonly repeated definition, however, is as follows: "two or more individuals from different backgrounds, with complementary competencies, interact to create a shared understanding that none has previously possessed or could have come to on their own" (WHO, 2010, p. 36). This definition implies a synergy in which an integrated perspective and interdependent work patterns that cross professional

boundaries (Goldman et al., 2016; Haddara & Lingard, 2013) yield better results than working independently (Bronstein, 2003; Hudson, 2002).

Reflecting upon the definitions reviewed within the literature, no one definition resonated with my own personal experience of interprofessional collaboration, primarily because they neither include the interactional element nor sufficiently incorporate the process perspective (Nancarrow et al., 2013; Perreault & Careau, 2012; Thistlewaite et al., 2012). Hence, content derived from definitions used by Reeves et al. (2018), Zwarenstein et al. (2009), Nancarrow et al. (2013), and Petri (2010) was integrated in the present work to develop a definition of interprofessional collaboration that was more appropriate to my research context and setting: a complex and dynamic team-based approach whereby professionals with complementary competencies and practices are mutually accountable and work interdependently to benefit patient care.

*Interprofessional Collaboration*

For the past two decades, the traditional notion of interprofessional collaboration has been preoccupied with "teams" (Dow et al., 2017). However, teams can entail a myriad of distinctions, as eloquently noted by Grumback and Bodenheimer (2004, p. 246): "Can a group of people who happen to be thrown together in a surgical suite or primary care office truly constitute a team?" The concept of teams[4] has been used to describe collectives spanning from cohesive groups that work together on a regular basis to ad-hoc project teams. Hence, the concept of teams does not necessarily translate to practice (Pollard et al., 2005).

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[4] Katzenbach and Smith (2003) distinguished divisions of teams according to function: "working groups" (lack shared responsibility or role definitions), "pseudo teams" (limited shared responsibility or coordination), "potential teams" (lack factors needed for effective teamwork, such as sharing of team goals), "real teams" (share common goals and accountability), and finally "high performance teams" (clear understanding of roles, share common goals, encourage personal development of members).

D'Amour (2005) depicted interprofessional teams on the basis of four underlying concepts: sharing, partnership, interdependency, and process. However, later, Reeves (2010) argued for a contingency approach as opposed to normative and linear understandings of interprofessional teams, developing a typology that comprises six key dimensions: (1) shared identity, (2) role clarity, (3) interdependence, (4) work integration, (5) shared responsibility, and (6) task predictability, urgency, and complexity (Reeves et al., 2018).

Yet, adjacent terms in the literature on interprofessional collaboration come in many forms (Drinka & Clark, 2000, 2016; Jelphs & Dickinson, 2008), such as "communities of practice" (Mørk et al., 2008; Pyrko et al., 2017; Swan et al., 2002) and "networks of practice" (Brown & Duguid, 2001; Dow et al., 2017; Duguid, 2005; Oborn & Dawson, 2010). Thus, Xyrichis et al. (2019) classified interprofessional collaborations according to an "Interprofessional Activity Classification Tool" (InterPACT) consisting of four main categories representing a continuum of looser to tighter team links, placing teamwork and network as two extreme ends of the continuum, while interprofessional collaboration and coordination are viewed as intermediate categories: (1) teamwork (task formation is viewed as unpredictable, urgent, and complex), (2) collaboration (a looser form, where the key difference concerns the lesser importance of shared identity and integration), (3) coordination (tasks are considered more predictable and less complex and urgent), and (4) networking (predictable and non-urgent tasks, often virtual in nature, with less interdependence and shared team identity).

Notably, because this dissertation focuses on tasks that are unpredictable, urgent, and complex, the term *interprofessional teams* remains appropriate according to the characteristics above. Yet, I will, in this dissertation, use interprofessional collaboration and interprofessional teams synonymously.

*2.3. Historical Perspective on Shaping Health Professionals*

The sociology of professions provides a lens through which to better understand the tensions and complications of interprofessional collaboration. According to Okhuysen et al. (2013), a thorough understanding of occupations and their historical underpinnings is crucial to preventing the misinterpretation of the dynamics of professionals. Thus, Anteby (2016, p. 186) argued that professions and occupations should be understood through three lenses: (1) the "*becoming*" lens, referring to how professionals become socialized into an occupation, (2) the "*doing*" lens, which depicts how members perform tasks or practices and enact claims about their scope of practice (Abbott, 1988; Freidson, 1986), and (3) the "*relating*" lens, which refers to how collaborative relations are built with others.

The sociological literature on professionalization (Abbott, 1988; Freidson, 2001a) distinguishes between "occupations" and "professions." An *occupation* entails broader membership in a shared community, encompassing roles and responsibilities for task work that span across jobs (Anteby et al., 2016). In contrast, a *profession* represents a specific type of occupation staffed by experts within a given jurisdiction who rely on credentials (Abbott, 1988; Freidson, 2001b) and typically possess the following characteristics: (1) abstract specialized knowledge, (2) autonomy, (3) authority and subordinate rank, and (4) degree of altruism (Hodson & Sullivan, 2012).

Professionals "*become*" socialized into distinct, shared cultures, values, norms, and worldviews (Abbott, 1988; D'Amour & Oandasan, 2005), which are embedded onto the self-identity of professionals during the professionalization process (Mitchell & Boyle, 2015), thereby making this identity deeply felt (Ashforth et al., 2008; Mollemann & Rink, 2014) and enduring (Pouthier, 2017; Reay & Hinings, 2005; Scott, 2008). Thus,

these identities become linked to the roles enacted by professionals (Barley et al., 2017; Caza et al., 2018; Caza & Creary, 2016; Vough et al., 2013).

Professionalism also construes professional boundaries that are governed by regulatory frameworks that restrict access (Lammers et al., 2013; Lepisto et al., 2015), demarcating what is - and what is not - a profession's sphere of competence and a legitimate domain of activity (Dane, 2010; Lamont & Molnàr, 2002). Institutionalization provides professionals with the autonomy to regulate their field of practice (Adams, 2015; Muzio & Kirkpatrick, 2011). Yet, because the epistemological and ontological foundations of professions differ, each professional discipline represents different capacities for identifying problems, processing information, and making decisions (Drinka & Clark, 2016; Sharpe & Curran, 2011). For instance, worldviews may be biological or psychosocial in orientation, acute or chronic in focus, disease-based or functional in nature.

Moreover, the limited exposure of professionals to practitioners from other disciplines tends to accentuate the positive distinctiveness of their own profession (Lingard et al., 2002) and perpetuate negative stereotypes about their professional counterparts (Caldwell & Atwal, 2003; McNair, 2005; Sharpe & Curran, 2011; Voci, 2006; Wackerhausen, 2009). Accordingly, there is a tendency to overlook the extent of overlap between professions (Irvine et al., 2002). Thus, making sense of the knowledge of team members and mutually identifying acceptable solutions based on common ground are particularly challenging in interprofessional teams (Barrett & Oborn, 2010; Kotlarsky et al., 2015). Additionally, professionals have different views about what constitutes effective teamwork, which further complicates collaboration (Finn, 2008; Haddara & Lingard, 2013; Reeves & Lewin, 2004).

Thus, interprofessional teams face a fundamental paradox, one in which deeply entrenched specializations contradict the very premise of interprofessional teamwork (Cameron, 2011; Finn et al., 2010; Hudson, 2007) and therefore challenge collaboration (Barrett & Oborn, 2010; Evans & Scarborough, 2014; Langley et al., 2019; Mørk et al., 2012; Swan et al., 2017). This may have a constraining effect on innovation processes that depend on the integration and transformation of practice across professions (Gherardi & Nicolini, 2000, 2002; Mørk et al., 2008; Nicolini et al., 2017). However, interprofessional education has the potential to open up spaces for a dynamic reconfiguration of professional responsibilities, creating new roles and possibly decommissioning others with the aim of innovating care delivery (Xyrichis & Ross, 2019).

In contrast, the "*doing lens*" focuses on how professionals defend, preserve, and negotiate existing boundaries concerning distributions of work, knowledge claims, and responsibilities (Abbot, 1988; Ferlie et al., 2005; Martin et al., 2009). Historically, medicine has been acknowledged as the most dominant profession (Benoit et al., 2010; Freidson, 1970), tending to resist intrusions in jurisdictions as well as the addition of "unwanted" tasks (Powell & Davies, 2012). Powerful professional associations influence regulations by legitimating certain innovations over others (Greenwood et al., 2002) and controlling occupational certifications and status differences between professionals (Gieryn, 1983; Kleiner & Krueger, 2010; McLaughlin, 2012; Salhani & Coulter, 2009; Suddaby & Greenwood, 2005; Weeden, 2002).

However, recently, medical dominance has been facing increasing resistance from other health professions that do not unreservedly support hierarchies (Baker et al., 2011; Coburn, 2006; Dent & Whitehead, 2002). Lower-status professions are increasingly voicing discontent with inequality in status, income, and the supervision of physicians,

suggesting that, in the future, a transition in favor of related professions may occur. Nonetheless, medical professionals continue to retain dominance as "gatekeepers to critical knowledge, status roles, and desired technologies" (Dingwall, 2012; Lingard et al., 2012; Long et al., 2006). Even so, interprofessional teamwork tends to blur roles among professions (Ashforth & Johnson, 2002; Brown et al., 2000; Hazgui & Gendron, 2015) and cause entrenchment in existing scopes of practice, which in turn threaten identities (Aquino & Douglas, 2003; McNeil et al., 2013; Mitchell et al., 2011), potentially manifesting in intergroup conflict (Hornsey & Hogg, 2000). This may consequently lead to poor collaborative outcomes (Cameron, 2011; Lloyd et al., 2011).

Conversely, the "*relating lens*" concerns the unfolding interactional dynamics between professionals. More specifically, it describes the mechanisms (when and how) employed to overcome challenges for the purpose of facilitating effective interprofessional collaboration. Among others, some studies have focused on structural design features (Valentine & Edmondson, 2015), boundary objects (Bechky, 2003; Kane, 2010), dialogically based approaches (Majchrzak et al., 2012), trading zones (Kellogg et al., 2006), cross-cutting demographics (DiBenigno & Kellogg, 2014), epistemic objects (Nicolini et al., 2012), or similar features that support the translation of meanings across professional boundaries (Carlile, 2002; Levina & Vaast, 2008).

However, unless the micro dynamics of interprofessional teams are managed through enhanced knowledge of the mechanisms that sustain collaboration, professions themselves will create barriers to collaboration (McLaughlin, 2012; Salhani & Coulter, 2009). Hence, the key to understanding professionalism is to consider jurisdictions in terms of the boundaries of professional identity and practice and, accordingly, the boundary work in which professionals engage on a day-to-day basis (Tazzyman et al., 2021).

## 2.4. Benefits and Barriers of Interprofessional Collaboration in Health Care

To date, no clear synthesis of the essence of what constitutes successful collaboration has been achieved, with outcome measures mainly being based on interactions between patients and teams as well as within-collaborative endeavors (Drinka & Clark, 2016). The frequently cited advantages of interprofessional collaboration from a patient perspective include improved care pathways (Elgen et al., 2021; Long et al., 2006), particularity those related to the quality of chronic care (Harris et al., 2016; O'Leary et al., 2012).

Interprofessional collaboration is considered to generate more responsive and patient-focused services that prevent duplication and fragmentation and thus reduce hospital stays (Burton et al., 2006; Caplan et al., 2004; Chang et al., 2001). Some studies have also observed improvements in clinical outcomes (Louise Lemieux-Charles & Mcguire, 2006; Xyrichis & Ream, 2008) and patient safety (Manser et al., 2009). While research on interprofessional collaboration in the psychosomatic field is thus far limited, it has been suggested to yield fewer benefits compared to somatic fields due to the inherent diversity between mental and physical health (Körner, 2010).

From the perspective of clinicians, a few studies have reported improved information sharing and decision making (Bunderson & Sutcliffe, 2002; Lamb, Sevdalis, Arora, et al., 2011; Lamb, Sevdalis, Mostafid, et al., 2011; Ruhstaller et al., 2006), learning (Rosell et al., 2018; Van Der Vegt et al., 2005), and enhanced mental health of team members (Burton et al., 2006; Chang et al., 2001; Haward et al., 2003).

While interprofessional collaboration is considered to yield numerous advantages over traditional care, few high-quality intervention studies show significant impact on health outcomes (Reeves et al., 2017). In fact, the empirical studies exploring the performance benefits of expertise diversity in teams has been decidedly equivocal, reporting positive relationships between expertise diversity and performance in some

cases and negative or null relationships in others (Bantel & Jackson, 1989; Kvarnstrom, 2008; Oxman et al., 2008; Van Der Vegt et al., 2005; Zwarenstein et al., 2009). Thus, clear evidence that interprofessional collaboration leads to service improvement and effective patient care remain elusive (Mickan, 2005; Sheehan et al., 2007). Accordingly, the impacts of interprofessional collaboration continue to be regarded as uncertain and modest (Kvarnstrom, 2008; Oxman et al., 2008; Zwarenstein et al., 2009).

Nonetheless, interprofessional collaboration remains highly endorsed (Körner et al., 2016; Lanceley et al., 2008; Lemieux-Charles & McGuire, 2006; Mickan, 2005; Mickan & Rodger, 2000; Sutton et al., 2011), despite the profound challenges involved in sustaining collaboration (Fay et al., 2006; Van Der Vegt et al., 2005; Van Knippenberg et al., 2004; Webber & Donahue, 2005). These challenges are particularly significant among health professionals (Körner et al., 2016; Kvarnstrom, 2008). Indeed, interprofessional teams are particularly vulnerable to information processing difficulties and decision making, which may result in suboptimal care (Brown et al., 2010; Lingard et al., 2012). According to Contandriopoulos et al. (2015), interprofessional collaboration often deteriorates as early as the planning stages of teamwork due to insufficient teamwork expertise (Byrnes et al., 2012; Caldwell & Atwal, 2003).

However, the most frequently cited challenge is linked to imbalances of authority, limited understanding of roles and responsibilities, and contradictory practices (Dibble & Gibson, 2018; Liberati, 2017; Lunkka et al., 2021; Mørk et al., 2008; Reeves et al., 2010; Rodriquez, 2015; Yeo, 2020), leading to boundary contestation (Bucher et al., 2016; Cameron, 2011; Langley et al., 2019). The central challenge in this regard is dealing with professional territories within and across professions (Abbott, 1988; Comeau-Vallée & Langley, 2020; Freidson, 1970; Liberati, 2017; Liberati et al., 2016; Martin et al., 2009;

Mørk et al., 2010) and surmounting knowledge boundaries (Carlile, 2002; Kislov, 2018; Lifshitz-Assaf, 2018; Oborn & Dawson, 2010; Tortoriello et al., 2012).

Another salient challenge involves navigating the numerous and often contradictory professional identities in interprofessional settings (Ashforth & Johnson, 2001; Cain et al., 2019; Rees et al., 2019). The fear of diluted identity (McNeil et al., 2013; Mitchell & Boyle, 2015) can instigate identity conflicts (Ibarra & Petriglieri, 2010; Leipsto et al., 2015; Mitchell et al., 2011; Pratt, 2012). Accordingly, interpersonal relationships between professions are frequently portrayed in a negative light (Baker et al., 2011; Cameron, 2011; Lloyd et al., 2011). Further, some studies have highlighted power struggles in which professionals use their cultural, social, or symbolic capital to maintain or improve their own position (Baker et al., 2011; Currie et al., 2012; Liberati et al., 2016; Stenfors-Hayes & Kang, 2014; Vad Baunsgaard & Clegg, 2013). This has been repeatedly documented to impede efficient collaboration, which ultimately jeopardizes patients' safety (Lillebo & Faxvaag, 2015; Van Leijen-Zeelenberg et al., 2015; Weller et al., 2011). Indeed, interactional dysfunctions are considered a core cause of healthcare failures (Reeves et al., 2017; The Joint Commission, 2016), where the resilience of professional boundaries and professional identities presents the most substantial obstacle in interprofessional collaboration (Martin et al., 2009; Morgan & Ogbonna, 2008; Tazzyman et al., 2021).

Fortunately, several systematic reviews have provided an overview of the factors that facilitate collaboration (D'Amour & Oandasan, 2005; McInnes et al., 2015; S. Morgan et al., 2015a; Mulvale et al., 2016; S. Nancarrow et al., 2013; Rawlinson et al., 2021; Sangaleti et al., 2017; Schot et al., 2020; Smith et al., 2018; Xyrichis & Lowton, 2008). These may be categorized into systemic, organizational, and interactional factors (San Martin-Rodrìguez et al., 2005).

*Systemic factors* are components external to the organization, including elements of social, cultural, educational, and professional systems that are crucial for the establishment of shared communication tools (San Martin-Rodrìguez et al., 2005). Simply put, these factors relate to the need for professional equality (Baker et al., 2011; Sullivan & Skelcher, 2002) and reduced cultural affinity for autonomy and individualism (Hojat et al., 2001). Consequently, systematic reviews have emphasized the need for more interprofessional education and teamwork training (O'Reilly et al., 2017) directed at dismantling hierarchies and "uniprofessional" identities with related autonomy and domination (Delva et al., 2008; Kvarnstrom, 2008; Lackie et al., 2020; Supper et al., 2015).

However, several systemic barriers still prevail and must be managed to better facilitate interprofessional collaboration (Rawlinson et al., 2021). These comprise financial issues (Supper et al., 2015; Wranik et al., 2019), lack of leadership at political levels, legal constraints concerning expansion of roles (O'Sullivan et al., 2015), increased work load, and limitations on human resources (Sangaleti et al., 2017). Policy initiatives that focus on facilitating a common understanding of respective professional knowledge areas and expertise, as well as mutual recognition of diverse roles and their interdependence, may be crucial to facilitate collaboration (MacDonald et al., 2010; Reeves et al., 2017; Xyrichis, 2020; Xyrichis & Lowton, 2008).

*Organizational factors* represent the structure, philosophy, available team resources, administrative support, as well as coordination mechanisms in the teams' environment (San Martin-Rodrìguez et al., 2005). These concern the promotion of a favorable organizational climate by dedicating time, physical spaces, and resources to provide the necessary infrastructure for collaboration and decentralizing structures that promote flexibility (Byrnes et al., 2012; Sicotte et al., 2002; Silèn-Lipponen et al., 2002;

Xyrichis & Lowton, 2008). In addition, philosophies that promote trust, interdependence, and openness in the organization are considered essential to building shared views and overcoming prejudices (Supper et al., 2015).

*Interactional factors* concern the interpersonal relationships between team members. These factors include volunteer participation, planning, a joint-problem solving orientation, and role clarity to help professionals become familiarized with the competencies of their professional counterparts and gain common ground for effective communication (Kerissey et al., 2020; McInnes et al., 2015; Sonya Morgan et al., 2015; Nancarrow et al., 2013). In addition, an open and receptive professional culture, psychological safety (Edmondson, 1999, 2003; Edmondson & Harvey, 2018), respect and trust (McInnes et al., 2015), team cohesion (Rice et al., 2010), and reflective (Bucher & Langley, 2016; Nina Lunkka et al., 2021; Schippers et al., 2014) and relational spaces (Kellogg, 2009) have all been highlighted as interactional factors important for facilitating collaboration.

## 2.5. Positioning the Research

While there has been recent advances in research on interprofessional collaboration, the field is young and many gaps remain (Goldman & Xyrichis, 2020; Xyrichis, 2020). Studies commonly focus on outcome measures rather than exploring the challenges encountered in the transition from uni-professional to interprofessional collaboration (Lewin & Reeves, 2011; Liberati, 2017; Oborn & Dawson, 2010; Sanders & Harrison, 2008). The extant literature is primarily based on cross-sectional analyses, in which relationships between measures of team characteristics are emphasized statically rather than dynamically (Reeves et al., 2017; Xyrichis & Williams, 2020). Thus, the unfolding process of interprofessional collaboration is still poorly understood (D'Amour et al., 2005; Reeves. et al., 2010) and inadequately operationalized (Gaboury et al., 2009).

Certainly, we need to develop a deeper understanding of how interprofessional collaboration unfolds over time and the mechanisms that sustain such collaboration (Goldman & Xyrichis, 2020; Liberati et al., 2016; Pomare et al., 2020; Xyrichis, 2020). This is crucial, as both scholars and practitioners consider interprofessional collaboration to be a prerequisite for future service delivery (Kempner et al., 2017).

Indeed, advancing our knowledge concerning early interaction patterns (Uitdewilligen et al., 2018; Zijlstra et al., 2012) and team development (Ericken & Dyer, 2004; Gersick, 1988) may provide deeper understanding of how to foster favorable conditions from the onset. This could be an important step forward, as it could help interprofessional teams mitigate the difficulties they often experience at the early stages of collaboration (Contandripoulos et al., 2015) and address complex problems more effectively (Dörner & Funke, 2017; Funke & Frensch, 2007).

Further, we need deeper comprehension of the process of professional identity reconstruction and the mechanisms that aid in this process (Bèvort & Suddaby, 2016; Ibarra & Barbulescu, 2010; Schultz et al., 2012), as the link between professional and interprofessional identities is still insufficiently understood (Joynes, 2018; Khalili et al., 2013; Lepisto et al., 2015; Rees et al., 2019; Tong et al., 2020). Thus, linking the literature on professions (Abbott, 1988; Freidson, 1970) to that of identity (Ibarra & Petriglieri, 2010; Pratt, 2012) may provide new insights into how enduring medical professional identities become reconstructed (Currie et al., 2012; Reay & Hinings, 2005; Scott, 2008).

Lastly, while few studies have addressed the microlevel processes of how knowledge transforms over time (Pyrko et al., 2017; Tagliaventi & Mattarelli, 2013; Yeo, 2020), how it is translated across boundaries in interprofessional teams (Edmondson & Harvey, 2018; Gabbay et al., 2020) requires further elucidation. The implications of the interplay between boundary strategies in the process of knowledge transformation are

also underexplored (Bucher et al., 2016; Kislov, 2018; Kislov, Harvey, et al., 2021; Langley et al., 2019), yet may advance our understanding of how knowing in practice successfully cross boundaries in teams. Thus, my dissertation seeks to advance knowledge in these areas.

## *2.6. Summary*

Section 2 has provided a historical overview of the emergence of interprofessional collaboration and its development over the decades, explaining the drivers and trends that in the field. By reviewing the terminology and modes of interprofessional collaboration, I have emphasized the lack of consistency in terms and provided a definition that is more suitable to the interprofessional teamwork in my research. Further, this review has listed current benefits of and barriers to interprofessional collaboration. In particular, I have underscored the highly salient barriers and research gaps concerning initial interaction patterns, professional identity reconstruction, and boundaries in the process of knowledge transformation. Further, I have positioned the current aim of exploring the unfolding process of interprofessional collaboration and the mechanisms that sustain it to provide an overview of the intended contributions to the extant literature, and hence also to team development and team interaction patterns, identity work and identity play, and the scholarship on professions, knowledge, and boundary work.

# 3. Methodology

> **Medical Doctor (MD₂):** I cannot believe how we can interpret things so differently in the team. Having observed the patient simultaneously, our experiences completely diverge.

Research tends to be "*confusing, messy, intensely frustrating, and fundamentally nonlinear*" (Marshall & Rossman, 2010, p. 21). Accordingly, the methodological choices made concerning the research approach and techniques are crucial to ensuring methodological rigor in the process of developing theory. Methodology refers to the "*procedures, tools and techniques used for gathering evidence*" (Schwandt, 2001, p. 158).

This section provides a detailed account of the methodology I employed my dissertation. I begin with a presentation of my ontological and epistemological stance. In doing so, I reflect on how my biography has intersected with the research process. Thereafter, I provide rich descriptions of the research context and highlight how access to this context was granted. Subsequently, I outline the research design and how I collected data. Consecutively, I provide an overview of the analysis process, followed by my reflections on the quality of the study and some ethical considerations.

## 3.1. Philosophy of Science

> **Medical Doctor (MD₃):** How can you possibly produce any real science from these observations and interviews?

Research paradigms are the basic beliefs that guide methodological choices (Guba & Lincoln, 1994). Whereas ontology relates to the nature of reality - whether one assumes that this reality exists independently of human intervention (Benton & Craib, 2011) - epistemology concerns the nature of knowledge (Carter & Little, 2007), representing the context of discovery and justification of the "*beliefs that guide actions*" (Guba, 1990, p. 17). Contrasting beliefs regarding the creation of knowledge and how it relates to "truth"

have generated both competing and co-existing research traditions (Cunliffe, 2010, p. 230).

I adhere to the ontological stance called critical realism, which considers "reality" as multi-layered, complex, and relative (Denzin & Lincoln, 2011). Accordingly, I recognize the fallibility in our knowledge of reality, considering it dependent on context, concept, and activity (Fletcher, 2017), in which it is merely imperfectly apprehensible (Denzin & Lincoln, 2011). Critical realism ascribes considerable value to social structures and relations (Buch-Hansen, 2014). It assumes that since our understanding of a phenomenon is derived through the meanings and interpretations of informants, it will be interpreted in divergent ways (Denzin & Lincoln, 2011; Guba & Lincoln, 1994). Thus, I consider knowledge to be socially constructed - shaped by prior experiences, norms, values, and beliefs. Consequently, perspectives on interprofessional collaboration may comprise multiple subjective versions of reality - each version socially constructed through relational experiences that are contextually situated to individuals, teams, or encountered events.

While I consider myself to be pragmatic in the sense that I value diverse perspectives, I adopted a constructivist epistemological stance. Constructivists view reality as relational, intersubjective, and constantly emerging (Creswell, 2013; Watson, 2011; Williamson, 2006). Yet, we are incapable of producing an exact replica of informants' perspectives of a phenomenon. Rather, an interpreted version of it is produced (Charmaz, 2011). Interprofessional collaboration has been explored through various paradigms and frameworks that remain implicit and, consequently, current conceptualizations diverge (Goldman et al., 2009). I acknowledge that approaching the phenomenon from multiple "realities" is necessary. Nonetheless (as shown in Section 2), in order to theoretically position my research, I sought to adhere to one definition of

interprofessional collaboration, one which is foremost based on my findings, but which also captures nuanced definitions provided in the extant research.

Constructivists favor a "naturalistic inquiry," utilizing explorative designs that embrace an inductive style of reasoning (Williamson, 2006). Accordingly, this stance enables the pursuit of an understanding through the lived experiences of informants (Strauss, 2000), which Guba and Lincoln (1994) argued occurred through dialogue. This emphasizes the relational element of constructivists' views, as dialogue implies that data are not only collected but also co-constructed by myself as a researcher and the informants in the search of intentional explanations. While "*one cannot simply be guided by what the data tells us*" (Hillman, 2011, p. 607)*,* constructivists construe an image of reality that reflects personal frames of reference, values, and prejudices through our mutual interactions with informants (Schutt, 1999). Thus, I proceed by reflecting on how my personal background has shaped my frames of reference. More specifically, I address how my medical background initially guided me in a positivistic direction, and how I gradually found this stance to be challenging in terms of embracing nuances and complexity in interprofessional collaboration.

*Reflections on My Background and Epistemological Stance*

Developing my epistemological stance has taken considerable time and reflexivity. Arguing that knowledge of reality is dependent on our frames of reference, Charmaz (2011, p. 140) suggested that "each theory bears the imprint of its author's interests and ideas, which reflects its historical context as well as the historical development of ideas". In adherence with recommendations (Charmaz, 2014; Corbin, 2009; Lauridsen & Higginbottom, 2014), I have therefore reflected on the impact of my own experiences and assumptions in constructions of "reality." In my opinion, my biography shaped data collection and redirected my analysis as new issues emerged. Consequently, I provide a

transparent reflexive account of the implications of my biography in determining ontological and epistemological perspectives.

My personal interest in the phenomenon of interprofessional collaboration developed from my background and professional experiences in health care. I come from a family comprising generations of healthcare professionals (grandparents, a mother, aunts, and uncles). My main source of influence throughout my childhood, my mother, was a specialist intensive-care nurse who worked at a hospital until her retirement. For as long as I can remember, I was set to walk in my family's footsteps and become a healthcare professional. My official journey as a healthcare provider started at the age of 15 at a community nursing home. Nevertheless, I had already become familiarized with the medical world in early childhood, occasionally visiting my mother at the hospital. Growing up, I often played with medical kits or anatomy puzzles. TV shows depicting clinical work and intrigue were also considered prime family entertainment during my childhood.

Despite a deep devotion to knowing in practice beyond nursing, my mother often conveyed to me that in order to achieve real influence and respect from other professionals, one must become a physician. In 2003, I started my journey as a medical student. I was granted a scholarship from a Norwegian university (NTNU) to attend an elite medical school with expertise in problem-based management in Australia. It was an intensive five-year professional program, one in which I was fortunate enough to engage with patients from the onset. Beyond providing valuable experiences in clinical care, it additionally provided me with numerous insights into the various practice domains and collaborations (or lack thereof) between disparate professions.

I quickly became aware of the vast differences and boundaries that distinguished medical students from other professionals (e.g., psychologists, nurses, physiotherapists,

nutritionists). During my formal matriculation in 2004, the Deans of Medicine informed us that we, future physicians, were privileged and distinguished from our professional counterparts at the hospital. Medical training consequently embedded within us distinct values, thought patterns, and practices that focused my line of thought and behavior from that point forward. For instance, beyond being trained on how to behave, I was trained in the proper emotional responses within a variety of situations.

While medical training had many benefits for patient care, it fostered a sense of being prominent—of being superior to my professional counterparts. Among other things, as medical students, we were explicitly addressed by surnames and offered first servings within the cafeteria. In contrast, students and staff from other professions were referred to solely by their first names and were rarely granted privileges. During shifts, I was instructed by mentors on ways to "kindly" reject opinions offered by "lower standing professions." Their knowledge bases were portrayed as merely "limited." Moreover, I was taught to dress formally, to wear a white coat with a stethoscope slung around my neck in hospital settings. In this way, I distinguished myself from those in other disciplines. Beyond practical or hygienic reasons, the white coat signaled something of value—the aim of wanting to be a member of the privileged few who had authority over matters of life and death. Literature such as "House of God" by Samuel Shem (1988) was also passed on from mentors to students, instilling in us the "true" culture and hierarchy of hospital life.

Although I witnessed impressive collaboration within the surgery wards as teams operated on strict routines in my placements, I often perceived interprofessional collaboration to be particularly challenging in terms of communication. I specifically remember one incident at the recovery ward where a fellow medical student and myself noticed a post-operative patient who was quite fatigued and had started vomiting. The

nurse contacted the on-call orthopedic surgeon. Yet, in an attempt to explain her observations of the patient, the nurse became interrupted. The surgeon asked, "*Are there any bones in the vomit? If not, then do not call me again.*" This incident was one of many that made a strong impression on me regarding how challenging collaboration among diverse professionals can be.

The highly competitive environment along with the poor collaborative climate I experienced as a medical student led my journey elsewhere within a few years of medical school. However, while completing my bachelor's and master's degrees, specializing in social psychology, I worked part time in nursing. In this role, there were many instances in which I was required to work interprofessionally. Nonetheless, in this role, I noticed that I was being treated as an "inferior" professional, which complicated my work. This experience provided valuable insights about what it was like to be on the other side of the medical boundary, recognizing the struggles of lower-status professionals dealing with their role enactment.

From 2011–2013, I worked as a management consultant at PwC, in which I participated and led several national and international healthcare projects. In many instances, I was responsible for projects aiming to improve healthcare processes using the LEAN methodology, conducting internal revisions, or restructuring coordinative practices among professionals. During this time, I was stationed for months at various hospitals and had close contact with hospital management and boards. Working closely with diverse professionals across disciplines enabled me to better understand how practices differ because our "worlds differ"—not just in terms of care practices, but also on the basis of claims to knowledge, status, division of resources, jurisdictions, claims to agency in technology, etc.

Moreover, due to unfortunate experiences of becoming a patient myself in addition to becoming a mother to a child in need of interprofessional care, I was given new angles in how I perceived interprofessional collaboration. Experiencing firsthand the disadvantages of ineffective collaboration and coordination and their impacts on patients was a valuable wake-up call that helped me to acknowledge the need to tackle this problem. Ineffective collaboration not only caused frustration and a tense climate among professionals, which was, at times, noticeable from the patient-guardian perspective, but also led to the duplication of work, time inefficiency, and lack of problem solving, all of which had devastating effects on the provision of care.

When I was offered the opportunity to become a PhD Scholar (recruited by professors at NHH), I was broadly interested in teamwork and complex problem solving. Although the initial focus of my doctoral work was a quantitative experiment on teams in an escape room, I shifted to a qualitative approach when I was offered the opportunity to immerse myself in the context of interprofessional teams. Due to my prior experiences of the difficulties in collaboration in health care, I considered this to be an interesting change in direction, hoping to contribute by providing a deeper understanding of the inherent difficulties of interprofessional collaboration and insights that could potentially impact practice.

My personal experiences in these diverse roles have guided my interest in the phenomenon and provided me with valuable understanding of the challenges of—yet also the necessity for—effective collaboration. The familiar healthcare background played a considerable role within my fieldwork. It yielded an understanding of the terminology and behavior of professionals and influenced my subjective experience of teamwork as well as the relationship I built with the informants. It also reduced the sense of displacement often felt by "outsiders" during fieldwork and instead permitted "many

doors to open" on my behalf (e.g., access to shadow professions, access to speaking at conferences, access to engaging in health research networks). Thus, while challenging, my hope is that this research may contribute to enabling professionals to embrace complementary knowledge practice, to enable the diffusion of knowledge that benefits interpersonal relationships and patients.

## 3.2. Research Context

This longitudinal ethnographic study took place at a Norwegian University hospital (Haukeland) between October 2018 and December 2021. I chose this particular site for four reasons. First, the politicized context of health care is particularly challenging compared to other contexts (Croft & Currie, 2016; Dopson & Fitzgerald, 2005; Kislov, Burns, et al., 2021; Liberati, 2017). Second, while there has been an increased strategic recognition of interprofessional collaboration at strategic levels in Norway, the impact on practice has unfortunately been modest (Ahgren, 2014; Blacker & Deveau, 2010; Holum, 2012; Romøren et al., 2011). Third, in psychosomatic care, fragmented services predominantly prevail and the considerable divergence between practices poses particular barriers to interprofessional collaboration. Accordingly, I considered this as an interesting empirical context to capture how interprofessional collaboration unfolded in practice in real time. Fourth, an established research group at the hospital requested my access to follow the implementation of interprofessional teams from their very engagement and onward, which provided unique access. In addition, I was well familiarized with the hospital setting from prior work experience at this hospital, and therefore had several points of contact throughout data collection.

More specifically, this empirical context comprised an intervention program initiated at an in-patient clinic named "Glasblokkene," specializing in pediatric psychosomatic care. It was established in 2016 and is localized within the "Children's

Energy Centre" at Haukeland University Hospital (Picture 2). This clinic includes several wards that are structured to facilitate flexibility and collaboration between various disciplines and departments. Hence, the context provided a powerful contextual "window" to ascertain interactions between diverse professional disciplines.

**Picture 1.** Glasblokkene Haukeland University Hospital



During the last decade, there has been a substantial increase in referrals to specialized healthcare services at Haukeland (Elgen et al., 2021), especially concerning children (> 500) with complex and ambiguous chronic symptoms who require consultations from multiple professionals to meet their needs (Heggestad et al., 2020; Lygre et al., 2020). This issue, known as multimorbidity, encompasses a mixture of symptoms on a continuum (Almirall & Fortin, 2013) ranging from "*barely detectable to severe and readily discernible manifestations*" that are both somatic and mental in nature (Elgen et al., 2021, p. 2; Salisbury et al., 2014).

Prior studies (Elgen et al., 2021; Heggestad et al., 2020; Organization, 2014) have demonstrated vast negative consequences of multimorbidity in terms of patient flow, duplication of services, and social issues of the patient (Berry et al., 2011; Jones et al.,

2008; Kline-Simon et al., 2016). Multimorbidity is considered a growing health burden due to the duplication of healthcare services it currently necessitates (Merode et al., 2018; Salisbury, 2012; Salisbury et al., 2014). Patients are referred to multiple specialists concurrently in traditional care approaches. Accordingly, fragmented approaches treat symptoms in isolation and often reach a non-conclusive decision when symptoms do not meet specific criteria for diagnosis. Appointments across specialties are uncoordinated and there is a lack of communication across mental and somatic healthcare services. Accordingly, it leads to a lengthy and demanding diagnostic process where the patients' issue remains a "diagnostic mystery." This has substantial negative impacts on the quality of life for these children. Because of their issues, their school attendance is diminished. A lack of diagnostic resolution poses the risk of being placed on early disability. This places increased demand on resources in an already strained healthcare system (Heggestad et al., 2020) and ultimately results in considerable costs to society. Yet, current clinical guidance on how to holistically approach multimorbidity remains elusive (Elgen et al., 2021).

However, interprofessional teams show promise with respect to knowledge-intensive tasks, as disparate yet complementary perspectives may become bridged though collaboration (Huffman et al., 2014). Accordingly, hospital management at Haukeland established eight interprofessional teams as an intervention to traditional care pathways in an attempt at the holistic management of multimorbidity in children (primarily 6 to 12 years of age). Autonomous and heterogenous professionals from mental and somatic health services (physiotherapist, medical doctor, and psychologist) were asked to collaborate on solving comorbidity issues in children for the very first time.

The teams had no prior interprofessional experiences, nor any formalized routines to guide them. Nonetheless, the teams were expected to collaborate with extreme

interdependence on patient cases, and were thus also expected to merge complementary expertise across mental and somatic practices. By doing so, they were challenged to self-define tasks, roles, and team processes. However, the teams engaged in three practice-based training sessions with an independent coach.

Hospital management had formed eight interprofessional teams, comprising multimorbidity experts from three distinct professions: psychologists (PS), physiotherapists (PT), and pediatric physicians belonging to gastroenterology or neurology specialties. In addition, a nurse assistant ($C_1$) and registered research nurse ($C_2$) assisted the teams on administrative tasks (e.g., booking appointments, training sessions, or facilitating tasks on a need-to-need basis). Figure 5 provides an overview of the teams.

**Figure 5.** Overview of Interprofessional Teams
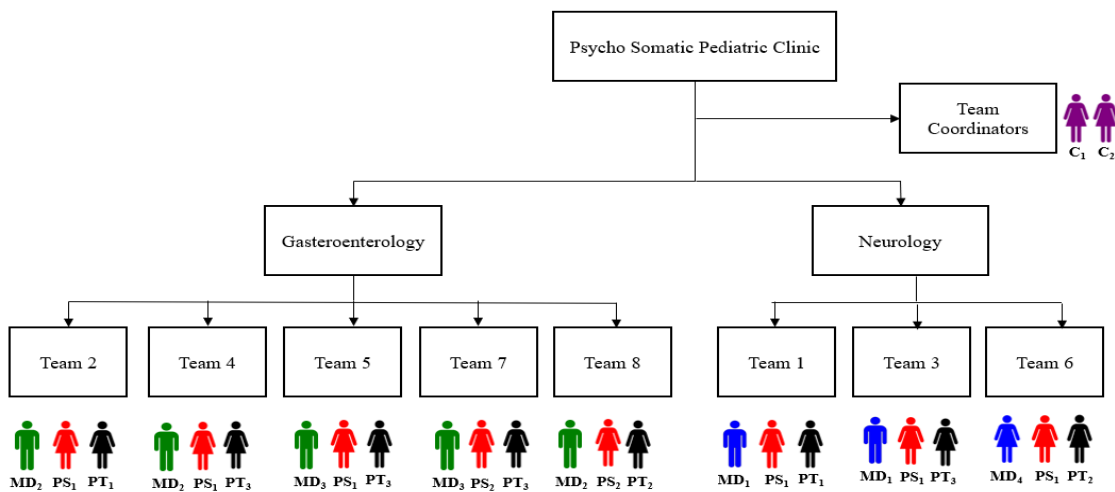


Patients were assigned to teams according to specific needs indicated in their medical journal. Team members volunteered to participate in the intervention program based on prior difficulties in solving multimorbidity cases individually. This information is essential, as interprofessional interventions are commonly politically enforced, demanding compulsory contribution.

Teams met regularly (weekly to every other week), spending on average approximately 4-5 hours on each patient case within a neutral clinical setting. Hence, this differs profoundly from traditional specialized practice, which is conducted within the time frame of 20 minutes. Figure 6 outlines the typical interprofessional consultation process. Note that the patients and their guardians were present for four of the seven steps of the process. Teams initially met to review the patient history during a planning session before proceeding to a collective initial meeting with the patient and parents to discuss core issues. Next, the teams conveyed their initial perspectives in a team meeting before engaging in various means of coordination (e.g., individual or joint consults). Subsequently, the teams met to share information and to conduct a decision collectively. Consecutively, the teams informed the patient and parents of their decision, after which the case was either resolved or required follow-up.

**Figure 6.** The Consultation Process
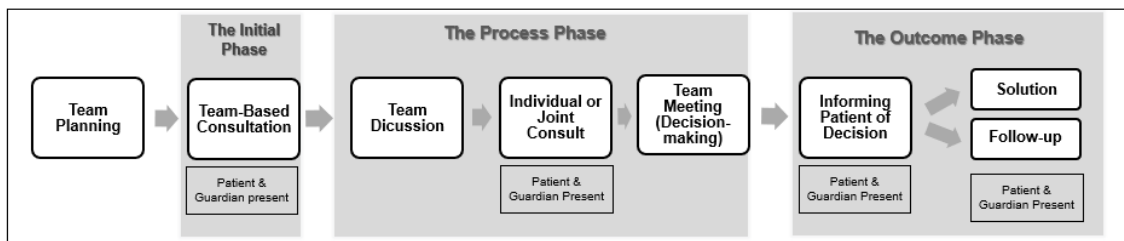


There are several reasons why I considered this setting and particular case permits a compelling empirical context. First, healthcare represents an extreme (Eisenhardt, 1989) institutionalized context that is prototypical of professions (Abbott, 1988; Reay et al., 2017). Extreme cases enhance the visibility of the constructs under consideration (Pratt et al., 2006), thus enabling the exploration of complex interactional tensions (Graebner et al., 2012) that arise in interprofessional teams. While health care represents an area of expansion in knowledge mobilization (Martin et al., 2009; Powell & Davies, 2012), robust jurisdictional boundaries and disparate practices separate professions (Abbott,

1988; Bucher et al., 2016; Finn, 2008). This isolates complementary knowledge (Mano-Negrin & Mittman, 2001; Tasselli, 2015). Consequently, knowledge translation across professional boundaries often fails (Addicott et al., 2007; Mørk et al., 2010; Swan et al., 2007). Initiatives aiming to disseminate knowledge and increase accountability and efficiency through interprofessional collaboration (Wagner, 2000) therefore accentuate tensions among professionals (Kislov, 2018; Kislov et al., 2017; Lamont & Molnàr, 2002; Quick & Feldman, 2014). Hence, this context provides a lens through which to view professionals as they transcend boundaries, jurisdictions, and barriers imposed by enduring professional identities, which has, as of yet, rarely been explored in longitudinal studies (Tazzyman et al., 2021). Thus, the context permitted the exploration of the interactional dynamics as they unfolded in real time, providing valuable opportunities to understand the phenomenon of inquiry.

Second, problem complexities imply novelty that undermines foresight. Routine protocols become inadequate to address emerging and unprecedented coordination. While this poses collaboration challenges (Ben-Menahem et al., 2016; Bruns, 2013; Cronin & Wingart, 2007), it also permits an opportunity to capture new practices that have not yet become embedded into work practices. Thus, it also offers pertinent opportunities to interpret the meanings developing in the process - all of which are currently underexplored (Lanceley et al., 2008).

Third, the teams comprised a unique configuration of professions that differed from those scrutinized in studies that typically focus on either emergency trauma teams or physician–nurse relationships (Atwal & Caldwell, 2005; Kilpatrick et al., 2012; Tasselli, 2015). Hence, this offers an opportunity to explore differences that have not yet been considered.

*Research Access*

Access is critical yet often challenging in real-time case studies (Langley & Stensaker, 2012). I was granted access to the research site upon a request to study interprofessional teams by a research group at the University Hospital that was interested in establishing a research collaboration with my institution. The established research group at the hospital had, prior to my engagement, conducted a pilot study to quantitatively evaluate various outcomes of utilizing interprofessional teams in multimorbidity management. Their focus pertained to quantitative comparative data to investigate the longitudinal benefits of integrated care (e.g., concerning declines in referrals, hospital bed occupants, and school absence of children - in general assessing the potential benefits of patients). Nonetheless, the research group considered my aim to qualitatively explore the interactional dynamics of teamwork to be relevant. Accordingly, I was given the freedom to formulate a research design that suited my interests within the frame of the contextual factors.

I was fortunate to enter the research site preceding the commencement of teamwork, but the team members had been selected prior to my engagement. I was provided with an access card and a parking space, assigned an on-site desk, and encouraged to collect as much data as I deemed necessary. Hence, I was offered an opportunity to explore the emerging practice and interactions in a flexible manner. I was introduced by the research team at the first collective information meeting in October 2018. My role was presented as that of a doctoral researcher studying interprofessional collaboration whose task was to shadow and observe the teams during their various activities. The teams were additionally informed of my healthcare and social psychology background. This was well received by the team members, who considered the social aspect of merging practices important yet currently unaccounted for in health care. At this

meeting, an independent coach provided some introductory coaching of the teams, which enabled my research stance to remain void of action research.

My medical background allowed me to obtain rich insights into the teams' professional practice (e.g., jurisdictions, terminology, and know-how of the hospital culture), which was relevant to understanding the challenges of interprofessional teamwork. I perceived that my presence was experienced as enjoyable and that our conversations were rewarding. Hugs were exchanged as I passed team members in the hallway. I received personal Christmas cards from informants, and text messages were sent that my presence in the field was missed upon the cessation of data collection. Also, I received unprompted emails containing documents that informants suggested were relevant on several occasions. I am grateful for my informants' dedication, for their warm inclusion, and for their accommodation of my presence in the field. I appreciate how they showed interest in my personal life and for the interesting conversations in which I was able to take part. I extend my reflections on impartiality concerning the various roles I enacted throughout this research in section 3.7.

### 3.3. Research Approach

Methods represent "*flexible, pragmatic, intrinsically atheoretical components of the research process, which is strongly influenced by methodology*" (Carter & Little, 2007, p. 1326). In this part, I will clarify the methods that underpinned my research, my qualitative approach, and my sampling, data collection, and data analysis. The empirical studies drew on data from specific phases and methods of the overall design, depending on the research questions each study sought to address. The methodological choices grounding each paper are more extensively presented in each article.

*Qualitative Approach*

My rationale for choosing an inductive, qualitative approach is threefold. First, qualitative studies are suitable for capturing interactional dynamics and processes (Creswell, 2013; Langley, 1999; Van de Ven, 2007). Such studies generate rich data that permit grounded theorizing, whereby a new theory emerges by iterating between data sources, emergent theory, and prior research (Corbin & Strauss, 2015). My main objective was to explore the interactional dynamics and processes of interprofessional teams, to develop a theory on how interprofessional teamwork unfolds and consolidates. While the extant literature on interprofessional teams commonly focuses on quantitative methods (Reeves, Lewin, et al., 2010), deductive reasoning and testing to establish relationships between variables insufficiently capture the interpersonal dynamics of interprofessional teams. My aim was to explore meanings through deep interactions with informants to co-construe accounts of "reality" (Denzin & Lincoln, 2011; Mills et al., 2006), coherent with the constructivist approach. Thus, a qualitative approach permitted me to focus on the culture and society within teams by facilitating comparisons of differences between teams and professions.

Second, the longitudinal fieldwork allowed me to openly approach the context without a priori hypotheses (Symon & Cassell, 2012). This produced flexibility and responsiveness to emergent phenomena (Marchall & Rossmann, 2011; Miles & Huberman, 1994). Consequently, I was able to refine my research questions as certain elements became more pertinent and incorporate unpredicted data items that were not initially foreseen. I also had the capacity to modify the interview guides in consideration of emergent and potentially important areas of inquiry.

Third, longitudinal approaches allow the identification of altering conditions as they occur as well as the underlying processes that lead to different outcomes (Langley, 1999). Qualitative approaches are therefore beneficial for examining the temporal

sequence of events (Langley & Stensaker, 2012; Langley, 1999; Langley et al., 2013). Thus, enabled me to attend to concerns relating to how events, activities, and choices were made over time, thereby playing a crucial role in understanding how interprofessional collaboration unfolds.

While acknowledging that qualitative approaches do not yield statistical inference, they do generate contextual generalization, which is important for developing theory (Gioia et al., 2013). Such approaches also enable a more holistic and context-rich account of natural contexts (Van de Ven, 2007), from which the phenomenon is not readily distinguishable (Marshall & Rossman, 2010; Patton, 2002; Yin, 2014). Based on these arguments, I therefore deemed a qualitative approach to be a suitable fit, one which was consistent with my methodological orientation.

I utilized diverse methodologies iteratively to nuance the phenomenon of interprofessional collaboration, valuing flexibility rather than blindly following "a recipe" to attain a methodological fit (Edmondson & McManus, 2007). According to Miles et al. (2014), it is not a requirement that researchers exclusively practice within the boundaries of one specific philosophical approach. Moreover, Kaplan (1964, p. 8) argued that "the world of ideas has no barriers within or without, hence does not call for one true 'logic' to govern it. Rather, it occurs in parochialism." Scholars have argued that combining methodologies is beneficial (Carter & Little, 2007; Gehman et al., 2018) yet requires careful consideration due to the variety of genres (Zimmer, 2006).

## 3.4. Research Design

The overall purpose or goal of this research was to generate a theory that would sufficiently grasp the complexity, intricacy, and mundanity of how interprofessional collaboration unfolds. Thus, concerted efforts were made to clarify concepts and their interrelationships to demonstrate how and/or why the phenomenon occurred (Corley &

Gioia, 2011, p. 12) in a processual manner (Langley, 1999). The proceeding parts outline in greater detail why an ethnographic research design realized this goal.

*Ethnography*

I deemed ethnography to be the best methodological fit to accommodate my research objectives based on a number of reasons. First, an ethnographic approach warrants context immersion that facilitates responsiveness to sensitive data as they emerge (Miles et al., 2014; Patton, 2002; Spradley, 1979) and permits a flexible combination of several techniques (Bow, 2002; Ybema et al., 2009). The research design in nonlinear and iterative so as to enable being "open to the setting and subjects of study" (Goreman & Clayton, 1997, p. 38). I utilized data triangulation, considering that multiple techniques and theoretical constructs would strengthen the validity of the research (Williamson, 2006). This rationale accords with my constructivist position and pragmatic orientation concerning the utilization of combined approaches.

Second, ethnography is considered to be effective in accessing informants' points of view and perspectives within the world in which they reside (Van Maanen, 2011; (Zilber, 2020), as ethnographies rely on concurrent encounters between the etic and emic perspectives (Gobo, 2008). This was compatible with my aim of generating a rich emic understanding of my informants' meaning of interprofessional collaboration. Spradley (1979, p. 34) argued that to understand the meaning of informants' experiences, one must strive to detect "how it is to walk in someone's shoes, to feel things they feel, and to explain things as informants explain them." This endeavor is challenging due to the contentious "multi-vocal, highly ambiguous, shape shifting and complex nature" of informants' "culture" (Van Maanen, 2011, p. 210).

Third, ethnographies are particularly appropriate to illuminate natural contexts and processes as they unfold (Cunliffe, 2010; Liberati et al., 2015; Reeves, Kuper, et al.,

2008; Watson, 2011). Thus, they are suitable for exploring care practices and the logics underpinning them, as well as for uncovering interpretations and meanings that are often taken for granted (Hammersley & Atkinson, 2019). This is because process data explore "what happened, who did what and when" in real time, and process studies are considered methodologically rigorous, theoretically strong, and practically relevant (Langley, 1999, p. 692). Thus, ethnography enables a more accurate explanation of how sequences of events generate a particular outcome (Langley & Stensaker, 2012; Pettigrew, 1990). Accordingly, a longitudinal process design can facilitate the generation of insights into how new collective practices emerge and become consolidated. Thus, I deemed ethnography to be beneficial for obtaining an in-depth understanding of the complexity, dynamics, and contextual features accompanying the phenomenon of interprofessional collaboration.

*Theoretical Purposive Sampling*

Developing theory requires responsiveness to data (Corbin & Strauss, 2015). Identifying relevant informants who may aid in the development of emerging concepts and who can provide "meaningful insight into the phenomenon" is therefore crucial (Nicholls, 2009, p. 640). The heterogeneity in professional disciplines provided valuable opportunities to capture variability in perspectives on interprofessional collaboration. In addition, such heterogeneity enabled me to make contrasts across professions and teams. I therefore deemed it necessary to include every team member as an informant in my study.

Accordingly, I relied on theoretical purposive sampling, which is essential for generating theory (Dey, 2007) because the surface characteristics of categories are useful for developing links between them (Charmaz, 2014). This sampling served an investigative purpose rather than that of statistical representation (Charmaz, 2014; Ritchie et al., 2003), which is in accordance with a constructivist approach.

King and Horrocks (2014) argued that the successful recruitment of informants is more likely if assistance is received from an insider. I was fortunate to be able to rely on hospital staff to coordinate essential information to informants on my behalf. This provided an alternative route to obtain their participation and initiate communication. Staff received written consent forms that I had developed (approved by REK and NSD ethical councils) and provided these directly to the team members and patients. Consent forms were stored by hospital staff, while I received a receipt containing informants' names and contact information.

According to Birks and Mills (2011), it is not feasible to predict the number of informants or type of data required at the onset. Informal conversations with administrative coordinators of the teams revealed information that I perceived to be relevant, and accordingly I included them in my sample. Furthermore, the order of data collection was not pre-ordained. Rather, data collection was flexible and was guided by emerging concepts, ceasing once theoretical saturation was achieved. This is in line with characteristics of grounded theory as outlined by Corbin and Strauss (2015). An outline of my sample is provided in Table 1.

**Table 1.** Overview of Sample

| Teams | Medical Doctor | Psychologist | Physiotherapist | Coordinators |
|-------|----------------|--------------|-----------------|--------------|
| 1 | $MD_1$ | $PS_1$ | $PT_1$ | $C_1$ , $C_2$ |
| 2 | $MD_2$ | $PS_1$ | $PT_1$ | $C_1$ , $C_2$ |
| 3 | $MD_1$ | $PS_1$ | $PT_3$ | $C_1$ , $C_2$ |
| 4 | $MD_2$ | $PS_1$ | $PT_3$ | $C_1$ , $C_2$ |
| 5 | $MD_3$ | $PS_1$ | $PT_3$ | $C_1$ , $C_2$ |
| 6 | $MD_4$ | $PS_1$ | $PT_2$ | $C_1$ , $C_2$ |
| 7 | $MD_3$ | $PS_2$ | $PT_3$ | $C_1$ , $C_2$ |
| 8 | $MD_2$ | $PS_2$ | $PT_2$ | $C_1$ , $C_2$ |

*Note:* $MD_1$ and $MD_4$ = neurologists; $MD_2$ and $MD_3$ = gastroenterologists; $C_1$ and $C_2$ = coordinators.

## 3.5. Data Collection

According to Charmaz (2014, p. 23), rich data collection provides a solid basis for "significant analysis". The constructivist stance permits diverse means to capture multiple and subjective realities rather than adhering to strict and specific procedures. Recognizing the advocated flexibility, I utilized a cyclical and iterative approach, one which enabled access to data that were not anticipated at the onset of this research.

Accordingly, multiple types of data were collected and were responsive to concurrent analysis. This in line with the recommendation by Henn et al. (2009). This ethnography includes comprehensive data as outlined in Table 2, comprising field observations and shadowing, in-depth, repeated interviews alongside informal conversations, and video and documentary data. Figure 7 provides an overview of the temporal aspect of the data collection, with an overview of the data sources displayed in Table 2.

**Table 2.** Overview of Data Collection

| Data | Material | Hours | Pages |
|------|----------|-------|-------|
| Observations | 45 team meetings (2–4 h) | 400 | 265 |
| | 22 interprofessional clinical consultations (4–7 h) | | |
| | 12 follow-up consultations (120 min) | | |
| | 4 training sessions (2–4 h per event) | | |
| | 24 interprofessional team lunches (30–60 min) | | |
| | 3 team workshops (6–8 h) | | |
| | 3 team workshops (6–8 h per workshop) | | |
| | Administrative meetings | | |
| Shadowing | Individual team members (~1 h) | 9 | 38 |
| Video Observations | 2 video reports (30 min) | 1 | 11 |
| Formal Interviews | 20 individual interviews (120 min) | 40 | 413 |
| Informal Interviews | 13 team-based interviews (40–60 min) | 24 | 177 |
| | 7 individual interviews (15–30 min) | | |
| | 15 critical incident interviews (30–60 min) | | |
| | 4 collective feedback sessions | | |
| Informal Conversations | Hallway conversations, discussions during formal dinners, informal coffee and lunch conversations, etc. | 64 | 53 |
| Documentary Data | Protocols, communication logs, emails, internal reports, newspaper articles, pilot reports, etc. | - | 170 |
| **Total** | | **538** | **1127** |

**Figure 7.** Overview of Fieldwork
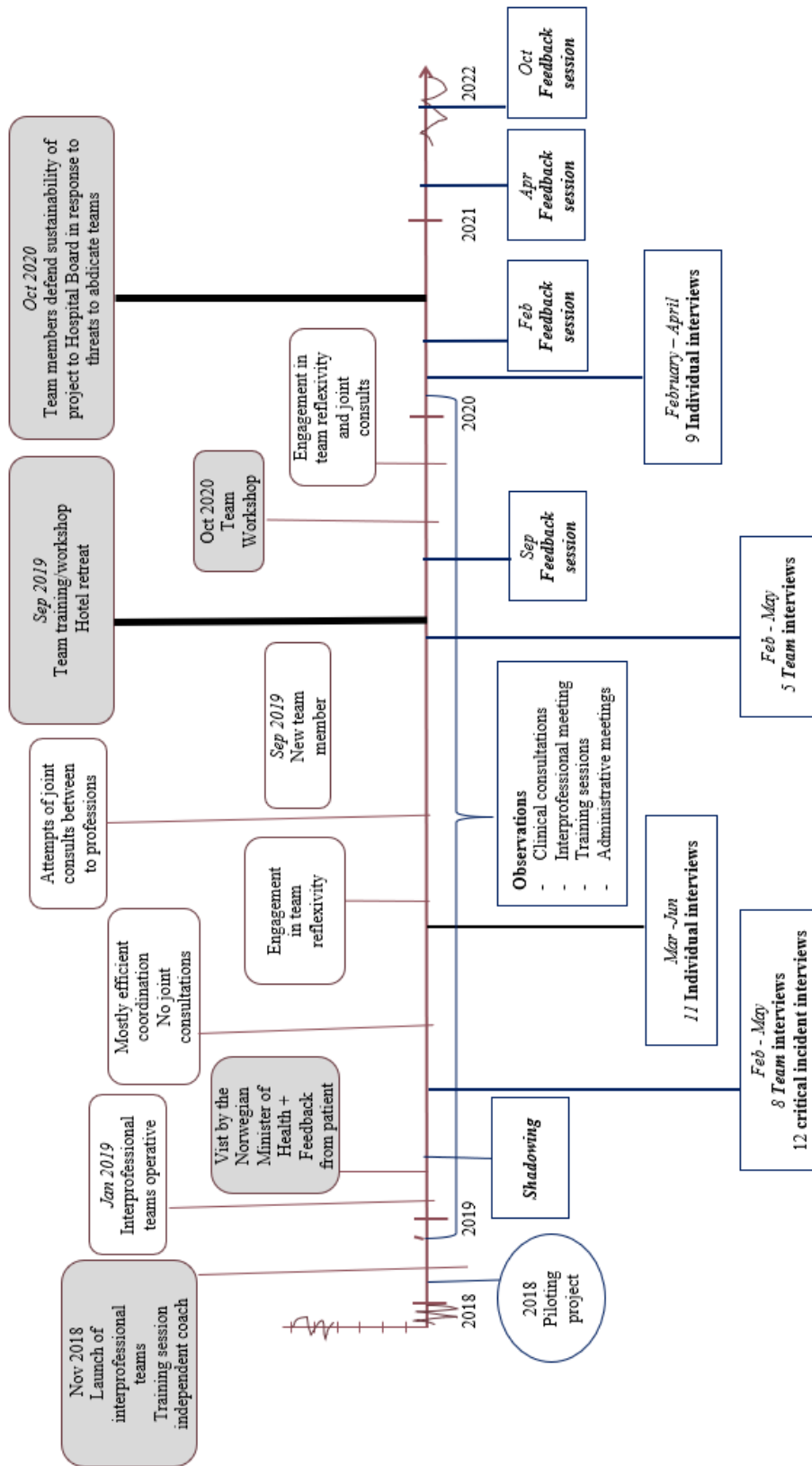


*Note:* The rounded boxes above the timeline highlight important events that occurred during data collection.
The square boxes below the timeline display an overview of the data collection process.

56

*Observational Fieldwork*

Observational fieldwork was the primary data source from the onset of the study, which is generally considered the most important type of evidence in ethnographies (Hammersley & Atkinson, 2019; Watson, 2011). To gain insights into the informal practices and subjective perspectives of informants' "reality," I immersed myself in their everyday activities at the hospital. This involved spending considerable time observing and interacting with informants (Savage, 2000). This is considered beneficial for process studies (Creswell, 2013) because it produces rich insights into events as they occur and permits the capturing of body language and informal shared information (Furlong, 2010). Interestingly, few existing studies have attempted direct field observations of interprofessional teams (Morgan et al., 2015).

When commencing observations, decisions must be made concerning where and when to observe, who to talk to, what to ask, what to record, and why (Hammersley & Atkinson, 2019; Miles et al., 2014). I initially decided to *shadow* team members—a technique well suited for documenting simultaneous processes, interdependencies, and the ways in which competing demands are resolved (McDonald, 2005), as well as the complexity of hierarchies and power dynamics and their influence on collaboration (Liberati et al., 2015). I simply asked team members if I could "*be their shadow and follow them around*" during their individual clinical work. This technique is recommended in contexts in which traditional static observations are not applicable to capturing the space-dynamics of the addressed activities (Czarniawska, 2007).

I took extensive and detailed fieldnotes while shadowing. The fieldnotes included quotes by informants and reported time, dates, and circumstances. I consciously distinguished between my own etic understanding of the situation and the emic descriptions of informants. Shadowing team members provided valuable insights into the

various practices of professionals. I considered my healthcare background to be crucial to understanding the terminology, means of practice, and patient care approach relevant in this setting. However, data collection encompassed several obstacles along the way. For instance, documenting fieldwork while simultaneously conducting observations is not always an easy endeavor, as it requires sensitivity to the setting. The "noise" of typing while sitting next to team members and patients was not always convenient nor suitable. Accordingly, there were several occurrences in which the notes had to be written by hand and subsequently typed on a computer.

During the first year, I spent approximately one year, 2-3 full days per week on average, at the hospital. I observed clinical activities and conversed with team members whenever possible. More specifically, I observed clinical consultations and team meetings, attended formal and unformal lunches with team members, engaged in hallway conversations, and occasionally attended dinners orchestrated by the hospital. These informal exchanges were productive for experiencing firsthand the challenges perceived by informants as they unfolded. After taking brief notes of remarkable conversations or events that emerged during my informal conversations, I spent the rest of every day of fieldwork developing these notes further. I additionally wrote notes detailing my own reflections in a diary. The second year comprised more informal conversations, follow-up interviews, observations of collective events in teams, and feedback sessions. Unfortunately, COVID-19 prevented further observations of patient consultations in 2020.

Given the complexity of the context, I attempted to balance my presence among the different teams in my observations of clinical consultations. However, this endeavor was more challenging than anticipated. Some teams had more stable and regular occurrences of teamwork as opposed to others. Busy and conflicting schedules in their

specialized clinics therefore challenged the regularity of teamwork (especially at the onset). There were also surprisingly many occasions in which the patients declined or cancelled appointments. Consequently, there were variations in rather than an equal number of patient consultations observed across teams.

While early observations of team consultations were inherently open, I developed an observation guide (Appendix A) within the second month to guide my focus and better structure my fieldnotes pertaining to patients. The observation guide was based on the extant literature on interprofessional teams (e.g., roles, boundaries, identity, learning) as well as on the focus that had emerged in prior observations. Observation guides enhance objectivity and efficiency, minimize researcher bias, and facilitate replication and verification (Angrosino & Mays DePerez, 2000; Kawulich, 2005). While various existing observation guides were evaluated (e.g., JTOG, AHRQ), I did not find guides based on checklists that were relevant for capturing the rich perspectives of informants during consultations. Consequently, I developed my own observation guide, which was mainly aimed at documenting conversations by a log format. Nonetheless, this guide additionally included reflections on non-verbal cues along with indicators that focused on key behavioral dimensions of teamwork.

Later on, I observed the teams outside of the patient consultations, during team meetings, lunches, workshops, seminars, etc. While I did not use an observation guide in these settings, extensive fieldnotes were taken. The observations and analyses proceeded simultaneously. Crucial insights emerging from the fieldwork were examined during critical incident interviews and were linked to the entire corpus of data. Consequently, new concepts were derived that exceeded the theoretical frameworks available in the literature, consequently warranting further exploration. The observations served to verify

and contextualize the information from a temporal viewpoint, which was of great relevance to triangulating perspectives across professions and teams.

*Interviews*

Interviewing is considered critical in qualitative research (Denzin & Lincoln, 2011; King & Horrocks, 2014). It opens "a window" through which to view the world—through the informants' eyes (Yates, 2004) - and thus enables better interpretation and comparison of perspectives across informants to derive an understanding of the phenomenon in question (Miliken & Schreider, 2012). I fluctuated between utilizing completely unstructured critical incident interviews in informal conversations and collective team interviews, while formal repeat interviews were semi-structured. This decision was made as semi-structured interviews offer more flexibility while providing the researcher greater control (Smith, 2008).

Following the observations, unstructured interviews occurred spontaneously - either as an invitation from team members who wanted to share their thoughts on an incident or upon my request for clarification of observed events. This generated insights into the shared experiences and different perceptions of team members concerning a specific event. I used critical incident interviews  (Everly et al., 2000; Flanagan, 1954) to capture real-time processes and to clarify retrospective accounts of informants' perceptions about situations.

One of the psychologists emerged as a key informant. I considered her experience from having participated in several teams, along with her ability to articulate how things were done and pointing out differences across teams to be relevant. Over time, a new psychologist was hired, resulting in the formation of new teams. This provided an interesting opportunity to question informants about how this affected collaboration. In general, unstructured interviews encouraged informants to talk about topics they deemed

to be relevant. They also facilitated discussions about various perspectives on teamwork experiences that I could not have anticipated at the beginning of the research. Hence, unstructured interviews were well suited for exploring shared experiences, ideas, activities, and perspectives on interprofessional collaboration.

In the formal interviews, I sought to remain sensitive to the preferences and comfort of the informants. Accordingly, the informants were offered the option of conducting interviews at their own office or department, with flexible time schedules that permitted rescheduling if necessary. While the majority of interviews were conducted in-person, conducting data collection in the midst of the COVID-19 pandemic necessitated some adjustments. Due to pandemic containment measures, i.e., "lockdowns," I conducted the remaining three interviews of the second round over Zoom. While I had planned to conduct a third round of interviews, the pandemic prevented me from doing so. Interprofessional teamwork was put on hold, as team members were urgently needed to attend to pandemic-related issues at their respective clinics.

The formal interviews lasted on average 120 minutes, were audio-recorded, and were subsequently transcribed verbatim. The interviews were in-depth, allowing for exploration of issues considered salient by informants. In many situations, the team members had much more "in their hearts" than they had anticipated or planned for, which gave me the opportunity to let the informants control the length and content of the interview.

Consent was obtained prior to recording, and informants were reassured of the confidentiality, enabling them to speak honestly without fear of reprisal. The audio-recordings allowed me to give my full attention to and concentrate completely on informants' responses, by facilitating flow in conversations that were void of disconnectedness (Charmaz, 2014). Additionally, the audio-recordings allowed me to

listen to the interviews several times during preliminary analyses and detect nuanced responses. Hence, enabled me to reflect on the content over a period of time before the consecutive interviews. This enhanced my awareness of various angles pertaining to interprofessional collaboration that were not immediately obvious while the interviews were occurring.

The audio-recordings were complemented by fieldnotes, and drawings made by team members during the interviews. For instance, team members were asked to describe collaboration as a metaphor or were asked to draw an image representing their current perspectives on team interactions. Such mental images were valuable indicators of informants' narratives and served as the impetus for further discussion. Sometimes, the informants would begin by drawing glorified pictures of teamwork (e.g., happy patients, a superhero team that provided a magic pill that solved patients' problems). Considering such depictions opposed my own views and interpretations of the events, I asked the informants to describe or draw images of things that were perceived to be challenging and or working sub optimally in their team. This opened up the space for more honest conversations about teamwork. For instance, team members would draw a fence between themselves and the rest of the team or describe how they perceived teamwork to be like "diving into an ocean filled with sharks."

I produced handwritten notes during the interviews. This was relevant in situations in which I did not want to interrupt the informants while they were talking, yet needed to remember questions to ask at a later stage. Furthermore, key points that emerged in the interviews were repeatedly and iteratively reflected upon, as each potentially represented novel concepts valuable for revising and refining the interview guide.

The repeated formal interviews were mainly semi-structured, with identified topics used as prompts to facilitate conversation. In line with Carey (2010), a semi-structured interview guide provided a framework of suggested topics to direct the conversation. The interview guide was only used at the mid-point of the interview so that the informants had sufficient autonomy to self-direct the conversation. Hence, the interviews began with a loose structure of clear, neutral and open-ended questions devised to concentrate on the particular areas to be explored, in line with recommendations by Patton (1990).

The interview guide comprised sensitizing concepts (e.g., boundaries, identity) that had been identified and considered relevant in previous observations, along with salient gaps in literature. Questions were worded carefully and adjusted for terminology to be compatible with health care to avoid constraining responses and expressions, as well as to help generate insights based on previous observations. Additionally, questions were adjusted according to surprising insights that emerged during the conversation, thus being responsive to the informants' heartfelt concerns. Accordingly, questions were asked in the manner "*Please, tell me about your experiences of interprofessional teamwork.*" In line with recommendations by Charmaz (2014), the guide was flexibly revised and adapted to informants' responses. While the questions were posed consistently, the transcripts revealed that the interviews were not constructed identically. Emergent responses occasionally directed the focus to topics other than those that had been anticipated, thus necessitating the re-ordering of questions during interviews.

The interviews were active, open-ended, and in-depth, as my aim was to create an environment in which the informants felt relaxed, non-judged, and able to speak freely. To enable this, I spent the initial stages of the interview inviting the informant to talk about themselves, their profession, and their role(s). Throughout the interviews, I sought

to capture what Charmaz (2014, p. 85) referred to as the "informant substantial experience." Accordingly, I attempted to engage in a mutual interpretation of action and meaning with the information (e.g., posing questions like "*Do I understand you correctly when you imply that…, or "this is how I interpret some of the actions in yesterday's consultation – how does this coincide with your experience?*"). This enabled the clarification of the informants' responses and the further elaboration of topics. Birks and Mills (2011, p. 56) described such a process as "narrative interaction." According to King and Horrocks (2014), this requires intense, active listening and follow-up questions that clarify informants' responses, in line with recommendations by Bryman (2012).

In my opinion, the informants perceived me to be trustworthy, as extensive personal information and descriptions of issues and challenges were conveyed without hesitance. Some questions were tough to answer and provoked emotional responses. Thus, informants were also given the opportunity to reflect on the responses and convey these reflections at a later stage.

The interviews were transcribed verbatim by a professional transcriber who was bound by a confidentiality agreement to protect the identity of the informants. A guide containing information on how to transcribe non-verbal cues, such as laughter and pauses, was provided to the transcriber. This ensured that all non-verbal cues that conveyed relevant information were accurately transcribed. I also checked the transcripts myself to ensure that they comprehensively captured the conversation as well as for analytic purposes.

*Video and Documentary Data*

Several types of documents, including PowerPoint presentations, board meeting logs, communication protocols, emails, funding applications from the hospital's research group, related quantitative articles on the intervention project, drawings by team

members, visualizations produced in clinical observations, photo collection at the research site, new reports, and other relevant announcements from the hospital's intranet, were additionally collected. This supplementary data served to verify and triangulate the findings gleaned from the interviews and observations. Such data are considered stable and unobtrusive, providing a broad coverage of events (Yin, 2009).

Video data were collected as an additional supplementary data source. These data comprised information meetings held by the teams via Zoom and were useful for conveying perspectives on the interprofessional experiences of extant clinics as well as those of the hospital board. In addition, I was invited to attend internal video-recorded conferences in which team members, and I were interviewed about our general experiences of the intervention project. This permitted the capture of pertinent information, particularly the informants' descriptions of the advantages, issues, and overall process of interprofessional collaboration. Generally speaking, video data are considered beneficial for evaluating complex interactions (Asan & Montague, 2014).

Documentary data provided valuable background information that expanded and deepened my understanding of the context and position of the informants. In triangulation with the other data, the documentary data strengthened the robustness of the research and its findings.

*Feedback Sessions*

Recognizing *beneficence* in terms of providing an advantage for the informants or the research context (Gobo, 2008), I held several feedback sessions on various occasions— in plenary sessions with teams, during research retreats, with the hospital board, and with adjacent professionals at the hospital. These sessions were considered a key component in maintaining research access and included a general report of pertinent issues that were unrelated to my research objectives. In return, the organization and the teams provided

fresh insights in the sessions that helped to comprehensively capture my informants' experiences.

## 3.6. Qualitative Data Analysis

In this segment, I make explicit my analytical strategies and choices. As stated in previous parts, the data collection and preliminary analyses occurred concurrently. An extensive review was not undertaken at the beginning of the research. I nonetheless sought to identify explanations in existing scholarship that would help me to better comprehend emergent phenomena as they arose in the field. Thus, consistent with grounded theory (Corbin & Strauss, 2015; Ramalho et al., 2015), the literature stimulated theoretical sensitivity, directed the development of my research questions, and assisted in formulating my analytical strategies. This in turn stimulated theoretical sensitivity (Corbin & Strauss, 2015) and provided supplementary validity by properly directing the research focus (McGhee et al., 2007).

While I draw from a comprehensive, single dataset in this dissertation, the data have not been reused. Hence, the quotes are not replicated, as the focus in each empirical article was different. As a constructivist, I acknowledge that multiple realities exist. Yet, for the purpose of developing theory, one "reality" was identified that reflected the co-construction of meaning between the informants and my own interpretations. The following segment explores how the abstraction of data contributed to the development of theory within this dissertation.

To adhere to the various emergent research objectives, my analytical strategies varied to some extent across the articles according to the nature of the research problem. Consistent with a grounded theory perspective (Charmaz, 2006; Corbin & Strauss, 1990; Glaser & Strauss, 1967), I entered the field with a broad research topic and approached the data inductively. This is considered an effective method for theorizing on how to

surface dynamic processes (Ashforth & Schinoff, 2016). The aim was to develop theory with the purpose of detecting patterns (Henn et al., 2009). Thus, I drew from a mixture of qualitative analytic techniques (Miles et al., 2014), adhering to flexible coding strategies as opposed to prescriptive methodological practices.

I used NVivoPlus12 to simplify coding retrieval and compare coded chunks of data that captured informants' experiences of interprofessional collaboration. The initial analyses were approached with an open mind, as the refined aim and focus of each study were not originally evident (Graebner et al., 2012) but rather gradually emerged over time. Rather than relying on preconceived concepts that sensitize data, I inductively coded the experiences of the informants. Thus, I assigned a short emic description or word onto a passage to identify key points that symbolically represented the essence of the informants' experiences. The initial analyses were therefore entirely empirically driven, encompassing multiple iterations of open coding (Andrews et al., 2013; Clandinin, 2006; Corbin & Strauss, 1990; Locke et al., 2020; Miles et al., 2014). This comprised the basis of the analytic concepts, which were subsequently investigated further through additional data collection. These analytic concepts were also used to refine my research questions, as per recommendations by Glaser and Strauss (2009).

Successively, I searched for connections among the codes, progressively clustering them into emerging themes. This axial coding process (Corbin & Strauss, 1990; Locke et al., 2020), involved identifying overarching themes based on Gioia's (2012, 2013) method. Although the data were emergent, it nevertheless required a certain degree of interpretation, which accords with the constructivist approach (Charmaz, 2014; Mills et al., 2006).

Consecutive analyses and theorization were based on multiple iterations (Andrews et al., 2013; Clandinin, 2006; Locke et al., 2020; Miles et al., 2014), fluctuating

mainly between induction and abduction. Whereas induction moves from the specific to the general (Van de Ven, 2007), abduction is employed to explain observed facts, such as missing premises in scholarly arguments (Van Maanen, 2011). Hence, I compared the extant literature to inductive codes to refine the concepts. To do so, I utilized data structures according to Gioia's method (2012), which is considered relevant for demonstrating the dynamic interplay between emerging concepts.

I iterated between sources, remaining open to new explanations while ruling out those deemed less plausible to ensure that I developed theoretically informed explanations. I engaged in constant comparison to identify latent patterns that may provide theoretical generalizations (Corbin, 2009). To derive these categories, I have employed various techniques, in line with Gehman et al. (2018). For instance, to reveal processes of interprofessional collaboration, I have leaned on recommendations by Langley (1999).

While some scholars have considered it problematic to combine processes and various theories, others have endorsed such combinations (Gehman et al., 2018). Similarly, Lewis and Grimes (1999) argued that applying multiple paradigms to complex and paradoxical phenomena may unify otherwise disparate theoretical perspectives and add rigor to research findings. As a pragmatic constructivist, I believe that employing meta-triangulation as a theory-building strategy affords richer, more holistic, and more contextualized views valuable for revealing the central points of interprofessional collaboration. While I am aware of the potential dualism and inherent biases of each lens, I agree with Morgan (1983, p. 21) that multiple paradigmatic lenses offer "puzzle-solving devices that bridge the gap between the image of the phenomenon and the phenomenon in itself." This view corresponds to that of Popper (1970, p. 86), who encouraged researchers to escape the rigidity of research paradigms: "We are at any moment prisoners

caught in the framework of our theories, our expectations, our past experiences, our language*."*

Lastly, I derived dynamic theoretical models to describe processes central to illuminating how interprofessional collaboration unfolds, thereby accomplishing the objective of this dissertation.

### *3.7. Reflecting on the Quality of the Study and Impartiality*

Qualitative studies are prone to errors, as subjectivity is present in the aggregation and interpretation of data (Miles et al., 2014). Accordingly, there is a need to rely on techniques that will reduce biases and enhance the validity and robustness of the research findings. Internal consistency or compatibility between epistemology and methodology are key markers of research quality (Carter & Little, 2007; Gehman et al., 2018; Thomas & Magilvy, 2011). Thus, qualitative studies are evaluated based on their degree of credibility, authenticity, criticality, plausibility, dependability, and confirmability (Baggini, 2017; Bryman & Bell, 2015; Denzin & Lincoln, 2011; Golden-Biddle & Locke, 1999).

*Credibility* refers to the trustworthiness of the researcher and the way in which the research is conducted. To establish credibility, the constructed realities of informants and the reconstructions attributed to them must be consistent (Symon & Cassell, 2012). The validation of data by research respondents and the triangulation of data sources (Bryman & Bell, 2015) along with prolonged engagement at the research site establish credibility (Hammersley & Atkinson, 2019). In the current study, credibility was established by my prolonged and extensive engagement with informants, which resulted in the formation of trusting relationships with them alongside greater contextual awareness of the research context. In addition, I was transparent in my detailed descriptions of the steps I took to

derive concepts and their relationships, as well as the associated processes, in line with recommendations by Dixon-Woods (2005).

Further, by repeating and transcribing the formal interviews, by employing follow-up questions, and by participating in feedback sessions and critical-incident interviews, I was able to check for clarity and revise my interpretations along the research journey. My findings were also discussed with research colleagues and presented at international conferences and workshops at the hospital.

The informants occasionally approached me in the hallway or after presentations to confirm or even elaborate further on situations or issues raised during the interviews. Moreover, I elicited the experiences of healthcare workers in my personal network beyond the examined teams, finding remarkably similar perspectives and accounts— particularly pertaining to the boundaries between clinicians. In addition, I relied on data triangulation and the iteration of data sources, which, according to Pratt (2000, p. 460), "builds stronger assertions about interpretations." Furthermore, the transcripts from my reflexive diary provided accounts of my background and how it affected my own preconceptions.

*Authenticity* concerns whether the conduct and evaluation of research are genuine. Authenticity is increased through extensive field immersion, since this allows the researcher to better understand a phenomenon through the interpretations provided by informants (Golden-Biddle & Locke, 1999). The rich descriptions of the research context alongside my critical reflections of my various roles demonstrated the authenticity of my findings.

*Criticality* concerns whether the interpretations of the material make more sense than alternative explanations (Golden-Biddle & Locke, 1999). The critical incident interviews, feedback sessions, and informal conversations were all crucial for considering

alternative interpretations and explanations to reach plausible conclusions concerning my findings. Further, while recognizing the commonalities and differences between various qualitative methodology genres, I carefully combined different qualitative approaches in an effort to achieve proper methodological fit (Edmondson & McManus, 2007) and rigor (Thomas & Magilvy, 2011; Thomas, 2011). Iterating between these approaches was a "creative leap" (Gehman et al., 2018), one which conferred the advantage of representing a more customized, transparent, and parsimonious theory to understand the phenomenon of interprofessional collaboration.

*Plausibility* refers to the extent to which the interpretations of research material are reasonable and represent a valid and reliable contribution to theory and practice. Plausibility is also referred to as *transferability* insofar as qualitative studies do not provide statistical generalizability but rather thick descriptions (Bryman & Bell, 2015). I have provided in-depth, rich descriptions of the research setting in addition to the broader external context, thereby enabling readers to consider contexts other than those to which my findings directly apply. Furthermore, I have highlighted the contributions and implications of each study and how they relate to the extant research, thus underscoring the plausibility of the study as a whole.

*Dependability* concerns how conclusions are reached in research (Symon & Cassel, 2012). By providing rich descriptions of research design choices and analytical procedures, the research process is made available to others so that they can establish dependability as well. In this research, I committed to "telling and showing" in the way in which I present my findings - i.e., by explicitly demonstrating to readers how the data were interpreted and how the conclusions were reached.

Finally, *confirmability* refers to avoiding "letting personal values and theoretical inclinations sway the conduct of the research and findings deriving from it" (Bryman &

Bell, 2015, p. 215). I proceeded by reflecting on matters of impartiality pertaining to my fieldwork that may have potentially compromised my findings. Ethnographic research is neither straightforward nor unproblematic. Ethnographic methods have often been criticized for insufficient self-consciousness on the part of ethnographers, and for the implications of this in terms of representation (Herbert, 2000). Accordingly, Katz (1994, p. 498) encouraged ethnographers to strive for *"conscious knowledge of the situatedness of our knowledge."* This argument claims that the position or role inhabited by the researcher "colors the glasses" through which the context is construed. Thus, impartiality remained an ongoing concern throughout my fieldwork, and I therefore consciously reflected on the repertoires of the roles I enacted in a reflexive diary to avoid what Hammersley and Atkinson (2019) called "going native."

Looking back on the research journey, I acknowledge that my roles varied. Entering the field, I considered non-participant observations (unobtrusive and no interaction) or assuming the role of a participant observer (an interactive researcher and interviewer). Seeking a "natural" presence, I considered it ideal to fluctuate between the two (e.g., assuming a non-participant role as essential to avoiding intrusions on patient consultations, yet participating in informal conversations). I sought to maintain a novice role rather than an expert role so as to minimize the distance between the informants and myself.

My engagement in observations additionally varied over time and situations. While I was mostly a quiet, non-participant observer during patient consultations, I frequently engaged in casual conversations as well (e.g., during breaks, engaging in informal dinners, or when informants invited me for coffee). There were even sporadic occasions in which informants requested my participation, and circumstances in which team members inquired into my personal life and career choices. However, additionally,

there were instances in which I was contacted by informants who needed to vent their frustrations pertaining to teamwork.

To permit the repositioning of the research findings, I have included extracts from my reflexive diary below. These extracts reveal the various roles assumed by my field identity and subsequently reflect on potential biases as a consequence of these roles. As the extracts demonstrate, I faced several dilemmas that ultimately increased my awareness of the pressures inherent in fieldwork in contemporary hospitals.

*Reflective Diary 11.02.2019*

Arriving the consultation room in the children's ward, I was greeted by the psychologist and physiotherapist. They were in the midst of reviewing the patient's journal and got up to ask if I wanted some coffee. We engaged in small talk, and the tone of the conversation felt harmonious and natural. The psychologist provided me with a chair around the consultation table, conveying that I should sit next to them in the consultation. However, an independent coach additionally joined the consultation room soon thereafter. He informed everyone that he would sit-in on the consultation (for at least an hour) to gain an idea of the issues of teamwork. I sensed that the presence of the coach instantly altered the mood of the conversation. The coach was much more formal and authoritative. In front of the team, he instructed me to remain in background. He moved my chair towards the very back of the room, while he took a seat to observe in much closer proximity. The coach also instructed me to put my computer down and keep handwritten notes, as he was concerned that typewriting would disturb the team. I sensed the power demarcation of his presence yet yielded to accommodate the needs of the team. I responded that I would adapt and was mere grateful for the opportunity to observe teams in action. I invited input on what would make my presence as comfortable as possible.

The physician showed up 10 minutes late (with no excuse given) and asked if everyone was ready. The physician's authority within the room automatically surpassed the coach, who immediately sat down quietly. Upon commencing teamwork, the specialists seemed quite insecure - not only in one another, but by the presence of two external observers in the room. Throughout the consultation, I noticed team members' eyes flicker constantly onto myself and the coach. While I had previously been introduced and had participated at various plenary workshops, I perceived that my role as a researcher still did not seem completely clear. The physician conveyed that it was discomforting that "we" (observers) would "judge" teams on their performance, and that he felt unease to be "competing" with other teams. Although I explicitly stated that my intension and role was purely to observe and learn how teams

collaborated interprofessionally over time, I sensed that the role of the coach and I were perceived perplexed.

During the break, the coach commented on the team's behavior, which instigated tense emotions in the team. While the coach has a more formal role in training and evaluating teams, I sense that this role was somehow being projected onto my role. Especially as the physician afterwards referred to the coach as my colleague. However, the patients and guardians did not seem to care much of our presence in the consultation. I was given the opportunity to shake hands and inform the patient of my role alongside the team. In addition, written and oral notice of my role as researcher had been provided prior to the consultation.

Throughout these eight hours of observing patient consultations, there were occasions were teams referred to my healthcare background and requested my "expert opinion" on the state of the patient. Asserting that this matter lied beyond my role as researcher, it was difficult to remain clearly objective and "unresponsive." I tried to convey empathy towards their situation, both in terms of indicating an understanding of the complexity of the situation and excusing the discomfort of being observed. Again, I requested input on how my presence would help them feel less intimidated, in which the team once again invited me to join them at the consultation table. They assured me that sitting alongside the team would reduce the sense of being observed. This invitation made me feel more engaged and included in the team.

## Reflective Diary 10.03.2019

Today I feel somewhat compromised in my role as researcher. My child is having a gastroscopy of the bowel to check for coeliac disease, and the gastrologist who showed up to perform the gastroscopy was one of my informants. I think we were both quite unsure of our roles at this moment. While I had complete confidence in his abilities, it felt somewhat strange to suddenly become the vulnerable parent rather than the objective scientist. We both sort of smiled at one another, admitting the oddness of the situation. Yet, we just went along with the circumstances. I could tell from having observed previous patient consultations, that my child was awarded extra attention and care. The physician went above and beyond to convey information and follow up my child in the subsequent consultations too. The experience of being a vulnerable parent in a context beyond teamwork, strengthened the bond between the informant and myself. From being the most reserved physician during prior clinical consultations, he became more inclined to share thoughts and convey his perception of events with deep emotions from this moment on. Accordingly, it made me realize that the relationship you build with your informant is not simply something that makes your position as researcher less objective. Rather, it may provide fruitful grounds for more extensive elaboration into the actual phenomenon of research, by opening unknown doors and that offer new angles.

*Reflective Diary 29.05.2019*

I sense that my presence is becoming more natural. Teams greet me with a smile, requesting input on personal matters during lunches, and invites me to shadow them even beyond team consultations. Finally, teams no longer seem to care much of my presence during the consultations. There is no longer flickering eyes onto myself during observations, and teams seems used to my constant note taking. I sense that there is an "unspoken" expectation that I trail teams along wherever they go – conveying "are you coming along." I am also invited to listen in on sensitive conversations that go beyond teamwork. I am no longer offered coffee in meetings, rather they treat me as a colleague - expecting me to get things myself. They no longer open doors for me or treat me like an outsider either. I have started to unload the dishwasher in the lounge room, and frequently engage in lunch conversations where I get to know people beyond my informants. People outside my informants have also become aware of my role and keep inviting me to come observe them too.

Even the physicians who questioned whether my qualitative data collection could "*yield anything scientific,*" have started to show interest in my work. While I sense more tension in gastroenterology teams, team members are not hesitant to share insight "just for my ears." Several times, I have received copies of emails and documentation pertaining to the project without requests. The psychologist and the physiotherapists in particular, keep approaching me unsolicited in the hallway to engage in small talk and share ongoing development in the project. Team members have increasingly unloaded tense emotions of difficult team experiences in conversations. I sense that I have gained their utter respectful confidence. I find it troublesome to share these intense emotions in my articles, as I wonder whether they are just instant responses to a situation. I have become very mindful to "protect" my informants, and sometimes feel that they share "too much." Is it right to put everything – the core emotional hardships of team members in documented in articles open for everyone to read? I find myself stepping careful in feedback sessions – fearing that the feedback I provide will somehow "taint" the journey and interfere with the team's collaboration. I have grown fond of these people. They have made me feel included and valued. In many ways, I feel more connected and "at home" the hospital opposed to colleagues at my own research institution.

As indicated above, my fieldwork posed many conundrums - in particular the salience of my identity as a researcher. While I sought to assume the role of a logical and rigorous social scientist during the course of my fieldwork, the endeavor was ultimately far more perplexing than I initially expected. Ethnographic methods reflect the various degrees to which a researcher actively participates in the activities of the social group under study.

While some researchers adopt the role of "hidden identities," others strive to maintain a more detached relationship. Variations in the roles assumed by ethnographers in the field have accordingly generated scholarly debates on the insider –outsider dichotomy (Yeo & Dopson, 2018). Nevertheless, interaction - and thereby the potential for unintended influence - is inevitable in close and ongoing association with informants (Hammersley & Atkinson, 1983), posing the formidable challenge of how to balance the extremes (Van Maanen, 2011).

According to Hammersley and Atkinson (2019), ethnographers and their roles are instantly judged by informants (e.g., whether they can be trusted, what they have to offer, or how easily they may be manipulated) the moment they enter the field. Hence, in my research, concerns over impartiality required reflections on how my presence and stance (including my cultural and intellectual position) affected my field identity and interactions with informants.

While I had initially hoped to achieve and sustain a "natural" presence within the research context, oscillating between the role of a "visiting" outsider and that of an insider who "joined the team," my fieldwork identity, as revealed in the extracts above, ultimately changed throughout the course of teamwork. Specific circumstances as well as different informants lent prominence to very distinct facets of my role. While I perceived my immediate role as that of an "outsider" (e.g., observing in the background), various circumstances strengthened my relationships with the informants, consequently placing me into the role of an "insider" (e.g., the teams inviting me to take a seat "at the table"). There were even occasions on which I was implicitly regarded as part of the team, with patients' parents as well as team members treating me as such.

Over the course of teamwork, I occasionally stumbled and wrestled with internal conflict over my identity. At times, I felt like a journalist reporting on an incident; at other

times, I felt like a colleague. Hammersley and Atkinson (2019) warned that the comforting sensation of being "at home" was a dangerous signal, demanding researchers to step back—to create social and intellectual distance. I acknowledge that my role confusion and actions may have potentially compromised the integrity of some of the observed activities, particular those involving the feedback sessions. Such an issue, however, is not unprecedented among ethnographic researchers (Van der Geest & Finkler, 2004; Weiss, 1993).

Desmond (2014) emphasized the shifting nature of social boundaries between ethnographers and informants, arguing that although roles may be clearly visible in some settings, they may be completely invisible in others. I concur with this argument, as I contend that the salience of my identity was shaped by various situations - many of which were beyond my control (e.g., abruptly and inadvertently assuming the role of a parent in relation to a key informant). Over the course of my fieldwork, I noticed that my role was variably associated with that of a "healthcare worker," "parent," "visitor," "colleague," "ethnographer," "teamwork expert," and "PhD scholar." Such role mutability warrants serious attention, as the role - and identity - of the researcher can significantly, albeit unintentionally, affect the manner in which mutual identities and narratives are constructed (Gioia et al., 2012).

Yeo and Dopson (2018) highlighted the duality of ethnographers' roles, particularly the relational element. According to relational ethnography, researchers must immerse themselves in the experiences of others. Hence, they must mediate between the abstract and the concrete, perception and reality, the subjective and the objective, during evaluations (Cunliffe & Locke, 2015; Desmond, 2014; Fawcett & Hearn, 2004; Gergen & Gergen, 2002). I made concerted efforts to adhere to the relational element in my own fieldwork. As a consequence, I believe it facilitated enhanced trust, offered otherwise

inaccessible insights into unspoken practices, and reduced the potential for perceived distance or power imbalances between the informants and myself. It was thus critical to capture honest emotions and to sufficiently probe the behavior of the informants. And yet, I found myself stumbling along the way, at times not knowing when to draw near to and when to distance myself from the informants. According to Cunliffe and Locke (2015), this type of knowledge is inherently relational, not logical.

The relational element brings to mind concerns regarding the potential for biased power differentials between ethnographers and informants. Informants hold power over researchers in defining the conditions for access and the extent of participation (Gobo, 2008; Ritchie & Rigano, 2001). While, in my fieldwork, there were instances in which team members could have denied me access to shadow their practice or declined to participate in interviews, this never occurred. I did not recognize any situation in which my role as a researcher exerted power over informants, as I never claimed the role of an expert and always asked permission to shadow or to observe teams. My healthcare background may have been useful in reducing the distance between the informants and myself during fieldwork, as I identified several situations in which team members portrayed me as "one of them." However, there were also occasions on which I found it difficult to separate my identity as a researcher from that of a professional counterpart. In some situations, team members approached me for advice and input on professional matters. While I kindly declined to offer such advice or input, it felt unnatural and uncomfortable to hold back, as if doing so created or extended the distance between us.

Beyond concerns over power differences, there is the risk of becoming sympathetic to an informant's point of view during extensive field immersion (Van Maanen, 2011). For me, remaining impartial and objective was not always a straightforward task - rather, at times, it seemed inevitable. The field dairy excerpts

presented above highlight specific instances in which the processual nature of my interactions with informants was particularly salient—e.g., I found myself unintentionally and abruptly expected to express expert opinions to the hospital board during in feedback sessions. As another example, although I was never directly involved in disputes among team members, there were instances in which informants would seek my counsel, request my input on sensitive matters, or even seek to determine whose "side" I was on. Maneuvering among tense professionals, most of whom desired to vent their frustrations, as well as avoiding being placed into the role of a mediator in disputes between professionals was a formidable challenge. There were situations, feedback sessions in particular, where I found it particularly challenging to remain fully impartial.

While the findings I present here were confirmed by informants to be accurately captured and conveyed (particularly by lower-status professionals), at times, physicians considered my work to be unproductive or – worse - as fuel for conflicts among team members (e.g., pointing out power differences between professionals). Physicians often collectively voiced their concerns about my findings in meetings, while physiotherapists in particular would approach me in private to give me their input. Yet, my impression was that the feedback sessions and informal conversations both yielded meaningful and fruitful avenues for discussion about tensions between professionals and how they were interpreted differently among professionals depending on their discipline. Although I perceived the psychologist and physiotherapist to be more inclined to support my fieldwork, the physicians were more prone to questioning whether my research would yield useful results, as they regarded qualitative research as not being evidence-based. Such a claim compelled me to reflect on how worldviews impact what is considered valuable and relevant and caused me to ponder ways in which bridges between research paradigms could be successfully mended.

While my research was primarily intended to capture the points of view of professionals, I also sought, on occasion, to record experiences from the perspective of patients. At times, parents would approach me in the hallway to convey stories, vent their frustrations, or explain their perceptions of interprofessional consultations. Although my identity as a researcher was never disguised—indeed, it was explicitly stated during patient consultations - I perceived that some parents and team members often thought of me as an expert and, consequently, came to me as if they had something to prove.

Given these issues, I took concrete measures to maintain my impartiality during the duration of my fieldwork. First, I did not receive any funding for this research from nor had any formal affiliations with the hospital that would have compromised my impartiality. Further, to ensure that I did not mislead the informants, they were fully informed, in writing, that my research was not backed or motivated by a political agenda of any kind. Second, I shadowed team members mainly at the onset of the fieldwork, thereby reducing the risk of becoming biased toward any one professional's perspective (e.g., the risk of "going native"; (Jönsson & Lukka, 2007). The actions I took during my fieldwork were intrinsically rooted in the Hippocratic oath to "do no harm" and were devoted to being sensitive to patients and their needs and circumstances at all times— e.g., being continually responsive to patients in concordance with appropriate "bedside manners" - as I was taught during my medical training.

Third, I strictly adhered to a relational perspective by always working to understand the points of view of informants - clearly the most crucial element in my research. I framed questions in such a way as to maintain an open and neutral manner and conducted informal interviews in which the questions emerged naturally and organically from the peculiarities of various contexts or situations. By analyzing my emic understandings from an etic perspective, I also maintained distance from the research site.

Doing so permitted me to perform a more impartial theoretical analysis of the phenomenon of interprofessional collaboration. Extensive fieldnotes covering both the general and nuanced behaviors, body language, and other non-verbal cues of informants were rigorously kept and referenced rather than assessing spoken words alone. In my experience, what people said often contradicted what they actually did. For instance, informants would express word such as: "*Yes, I am very positive about teamwork. My team members have useful competences to solve these cases*." Yet, during consultations, their eyes would often roll when responding to team members' comments and they frequently sought out solo consultations. Accordingly, capturing such important discrepancies between words and actions facilitated a closer exploration of the intricacies of the teams' climate.

Fourth, the diary included extensive reflections on my own senses and emotions during the course of my fieldwork. For instance, I reflected upon my degree of attachment to different informants as well as how I delivered emotional responses to patients' often heart-breaking stories. At times, I would shed tears; at other times, I almost felt "trapped" in my role as an observer. Witnessing verbal "attacks" from angry parents directed at team members and sensing the atmosphere of tension and conflict that frequently enshrouded the teams were extremely uncomfortable experiences during my observation period. Observing patient consultations was particularly enervating, often leaving me in a state where I myself needed someone to whom to vent.

It was from the totality of intertwined, intersubjective understandings of contexts and actions captured through a multitude of ongoing interactions over the duration of my fieldwork, that I discerned meaning. These comprised mundane movements were consisting of smiles, laughter, hugs, hands pounding on tables, frustrated voices, and rolling eyes. Consequently, my attempts to derive meaning from the activities and

behaviors of the informants, comprehensive as they were, cannot be said to have been devoid of subjective interpretations. Ethnography is not a flawless methodology, as I noted time and again in my review of the many potent and accurate criticisms leveled ethnography as a field and a method.

While acknowledging these pitfalls, I nonetheless maintain that the ethnographic approach is uniquely well suited for accurately recording experiences to advance theoretical claims of interprofessional teamwork. I assert that interpretive practices are central to science, and I concur with Herbert (2000), who suggested that the subjectivity of observers may in fact represent an "analytical asset". Data are never naive nor unproblematic beyond questions of relevance, reliability, appropriateness, and accuracy. Hence, objectivity is itself a social construction (Holstein & Gubrium, 1994). I therefore consider ethnography to be a pivotal methodology, one that can yield unique, rich theoretical contributions to the study and general understanding of the phenomenon of interprofessional collaboration.

### 3.8. Ethical Considerations

Ethical concerns in social research have been defined as "the moral deliberation, choice and accountability on the part of researchers throughout the research process" (Edwards & Mauthner, 2002, p. 14). In my research, therefore, ethics were the standards that guided my conduct in relation to the rights of informants.

Ethnographic data collection is not uncomplicated. Accordingly, I was constantly aware of ethical concerns during the course of data collection. My approach relied on informants confidentially sharing their experiences and thoughts, sometimes deeply troubling and emotional, in order to capture their "real" perspectives of interprofessional collaboration as it unfolded. However, several measures were taken to ensure the welfare of the informants and to safeguard their confidentiality, measures that adhered to the

ethical principles outlined by Bryman (2012): prevent harm, gain informed consent, protect privacy, and renounce deception.

Approval was required from two sources: NSD (#237871) and REK (#2018/344/REKvest). These authorities assessed the potential risks of participating in the research prior to participation. All informants were fully informed that their participation was entirely voluntary and that they had the right to withdraw from the study at any time. That said, no informant chose to withdraw from the study.

The principle of beneficence makes the researcher responsible for guaranteeing that no harm befalls any research participant (Polit & Beck, 2010). Yet, it is irrefutably difficult, if not impossible, to predict how or whether any interview question will adversely impact an informant. When asked whether they considered themselves to have been negatively affected by their participation, the informants in this study claimed they had not. However, there were instances in which some informants asked (with notable concern) whether their statements would be made explicit or would be concealed on the basis of their professional status. Accordingly, obtaining their "true" perspectives required them to trust in my methods, believe me when I told them that their privacy and identities would remain protected and confidential, and have faith in my ability to care for their well-being.

The confidentiality and non-disclosure of the personal identities of the informants in this research were ensured by anonymizing them according to their profession, thereby reassuring them that they could speak freely. Each informant was assigned a number along with the abbreviation of their profession (e.g., $MD_2$). This method allowed codes to be traced to individual responses without exposing the identities of the informants. Moreover, all transcripts were securely stored on a password-protected computer with a back-up system. Unauthorized access to the research transcripts was thereby prohibited.

Although the interviews were audio-recorded and then transcribed by an independent transcriber, a confidentiality agreement was signed, and the data were erased after completing the transcriptions.

## 3.9. Summary

In this section, I sought to convey the rationale behind my ontological, epistemological, and methodological assumptions. I reflected on how my personal biography "colored" my perspective of "reality," rendering it for the most part subjective and contextually co-constructed based on the experiences I shared with the informants. Thus, thereby indicating my methodological orientation as a constructivist. I therefore attempted to make explicit the rationale behind my choices, the obstacles I faced along the way, the revisions, and amendments I made as new findings emerged throughout the process of data collection, and the analytic strategies I chose to apply to the data.

Moreover, I argued for an ethnographic approach to developing grounded theory. This is argument is based on the premise of subjectivity and flexibility in the field while maintaining the strength of procedural frameworks within grounded theory. However, I acknowledge that outcomes are contextually situated. Hence, they may vary depending on the premise of temporality, different informants, or different researchers (particularly if adhering to another philosophy of science) in the research process. I additionally provided accounts that demonstrated the rigor of my research according to key markers in qualitative studies.

## 4. Presentation of Research Articles

This work comprises the synopsis given thus far and three empirical research articles. The abstracts introducing each article are presented below. In Table 3, I provide an overview of the components of each article. The articles can be read separately, but they collectively contribute to the literature on interprofessional collaboration by exploring the unfolding processes and mechanisms by which it is sustained.

# The First Decisive Minutes: How Initial Interaction Patterns Matter for Complex Problem Solving in Interprofessional Teams

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Although interprofessional teams are increasingly relied on to solve the rising challenges of complex and ambiguous problems, prior research has demonstrated that these teams are fraught with interactional problems that impede their effectiveness. While previous studies have emphasized the importance of initial team interactions, the distinctive characteristics of the resulting interaction patterns and how they influence team processes and outcomes remain unclear. This ethnographic study observed 22 interprofessional clinical consultations and investigated the initial team interactions that occurred during them. We found that early patterns in relational tones and cognitive approaches were critical in determining the subsequent processes and outcomes. From the distinct initial interaction characteristics, we built a typology of four initial interaction archetypes: Settlers, cuddlers, mensas, and adventurers. Our results illuminate how these archetypes strongly relate to team processes and performance outcomes. We conclude by explaining how our study extends the literature on team development, team interaction patterns, and complex problem solving in interprofessional teams.

*Keywords:* initial interaction patterns; initial phase; teams; team processes; interprofessional collaboration; complex problem solving; trajectory; typology

# Escaping the Professional Identity "Straitjacket":

# Towards a Model of Identity Plasticity

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Interprofessional teamwork may threaten professional identities and consequently impede collaboration. This is particularly the case in health care, where resilient professional identities and practices contradict. However, our ethnographic study of interprofessional health care teams showed that over time, professionals reduced identity tensions and escaped their professional identity "straitjacket" to extend their professional identity repertoire. Through real-time observations and interviews, we delineated the process of professional identity reconstruction, which has been insufficiently accounted for in interprofessional teams thus far. Drawing upon literature on identity work and identity play, we explicated five phases of identity reconstruction in our identity plasticity model: shattering, shielding, juggling, fusing, and embodying. This highlights the plastic nature of professional identities, in which advanced phases are fueled by a professional's courage, vulnerability, and flexibility. Our findings contribute to theoretical insights on the plastic nature of identity, extending how professional identities become reconstructed in interprofessional teams. This has valuable implications for practice in highlighting mechanisms that may boost identity reconstruction to augment collaboration.

*Keywords:* identity reconstruction; professional identity; identity play; identity work; plasticity; interprofessional teams; professions; health care

*Article 3*

# From Boundary Guard to Rebel: Strategies for Transforming Knowing in Practice Across Boundaries in Interprofessional Teams

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Interprofessional teams merit the hope of bridging fragmented knowing in practice to solve highly complex problems. However, hierarchies, jurisdictional claims, and contradictory approaches between disparate professionals tend to give rise to conflicts and competitive boundary work. This is particularly the case in healthcare. This paper sheds light on how to unlock the potential of transforming knowing in practice across boundaries in interprofessional teams by exploring the influence of boundary strategies on the unfolding process of knowledge transformation. Our ethnographic study trailed eight interprofessional healthcare teams, who were tasked with resolving complex chronic cases in children. The paper contributes to the literature by offering a dynamic model that illuminates the progressive stages of knowledge transformation. It also describes different strategies that can be used and how the dynamic interplay between them reduces, stabilizes, or boosts levels of knowledge transformation. The paper suggests distinct boundary-crossing activities that offer advice to policy makers and practitioners aiming to reduce organizational silos and tribalism among professional disciplines.

*Keywords:* knowledge transformation; boundary work; knowledge boundaries; boundary strategies; boundary permeability; boundary-crossing activities; interprofessional teams; jurisdictions

**Table 3.** Overview of the Empirical Articles

|  | **Article 1** | **Article 2** | **Article 3** |
|---|---|---|---|
| **Title** | The First Decisive Minutes: How Initial Interaction Patterns Matter for Complex Problem Solving in Interprofessional Teams | Escaping the Professional Identity "Straitjacket": Toward a Model of Identity Plasticity | From Boundary Guard to Rebel: Strategies for Transforming Knowing in Practice Across Boundaries in Interprofessional Teams |
| **Study Purpose** | Contribute to understanding mechanisms that facilitate favorable conditions from the onset and their link to processes and outcomes. | Contribute to understanding the process of professional identity reconstruction in interprofessional teams. | Contribute to understanding how knowing is transformed in practice, and how boundary strategies influence this process. |
| **Research Question(s)** | What are the characteristics of the initial interaction patterns in interprofessional teams and how do they influence teams' processes and performance? | How do professionals free themselves from the straitjacket of their professional identity and advance their identity repertoires? | How does the process of transforming disciplinary knowing in practice unfold? What boundary strategies do professionals employ in the process of knowledge transformation, and what is the interplay between these boundary strategies? |
| **Theoretical Lens** | Team development (Ericken & Dyer, 2004; Gersick & Hackman, 1990; Gersick, 1988), team interaction patterns (Lei et al., 2016; Stachowski et al., 2009; Uitdewilligen et al., 2018; Zijlstra et al., 2012), complex problem solving (Dörner & Funke, 2017; Hageman & Kluge, 2017) | Identity work (Bèvort & Suddaby, 2016; Caza & Creary, 2016; Pratt, 2012; Pratt et al., 2006), identity play (Chandwani et al., 2021; Fachin & Davel, 2015; Ghaempanah & Khapova, 2020; Ibarra & Petriglieri, 2010; Stanko et al., 2020) | Knowledge transformation (Carlile, 2002, 2004), boundary work (Kislov, 2018; Langley et al., 2019; Liberati, 2017; Liberati et al., 2016; Majchrzak et al., 2012; Mørk et al., 2008) |
| **Unit of Analysis** | Team level | Professional level | Team and professional levels |
| **Findings** | Develop a typology of four initial archetypes: settlers, mensas, cuddlers, and adventurers. Highlight the relational and cognitive aspects as equally important. | Develop a model, called the "Identity Plasticity Model," that highlights the various phases of identity reconstruction in professions during interprofessional teamwork. Emphasize the plastic nature of professional identities. | Identify the process of knowledge transformation in interprofessional teams. Identify three distinct boundary strategies and illuminate the interplay between them. Describe how boundary strategies shape the process of knowledge transformation. |
| **Theoretical Contribution** | Contribute to the literature on interprofessional collaboration and the adjacent literature on team development, initial interaction patterns, and complex problem solving by theorizing how interprofessional teams can foster favorable conditions from the onset by adapting the adventurer archetype. | Nuance and extend the literature on identity work by illuminating how it and identity play are linked in professional identity reconstruction. Contribute to the literature on professions by revealing how even enduring medical doctors reconstruct their professional identities to extend their identity repertoire, and the mechanisms behind this reconstruction. | Extend the literature on boundaries by developing a dynamic model of knowledge transformation and its interlinkages with boundary strategies. Illuminate variations across professions in the use of strategies and changes in status, and depict two central boundary-crossing activities that help to bridge knowing in practice. |

## 5. Discussion

The main aim of this dissertation was to understand the unfolding process of interprofessional collaboration, and to explore the mechanisms that sustain collaboration.

Overall, the process of interprofessional collaboration unfolded as a journey from *interprofessional to transprofessional* teamwork. Following teams for a prolonged period of time enabled me elicit changes in the scope of practices, roles, leadership, task work, and team processes. Below, I will ascertain highlights of the unfolding process of interprofessional collaboration.

During the *early to middle stages* of teamwork, my observations revealed that planning and evaluation were undertaken collectively, yet leadership and decision making were preserved physicians. This indicates that an *interprofessional approach* was enacted according to definitions by Thylefors (2007; Thylefors et al., 2005). Moreover, team members had vastly different views and perceptions about what teamwork should entail, coinciding with previous studies (Finn, 2008; Haddara & Lingard, 2013). Thus, professionals were inclined to adhere to contradicting clinical guidelines that were insufficiently adapted to an interprofessional context. This consequently created tension, and I observed lack of insights and appreciation for the competencies of professional counterparts, resembling the findings of Kotlarsky et al. (2015). Accordingly, professionals approached the patients' complex problems from separate perspectives, thereby insufficiently translating knowing in practice across profound knowledge boundaries. These findings resonate with prior findings, in which surmounting knowledge boundaries (Carlile, 2002, 2004) indeed is tremendously difficult (Edmondson & Harvey, 2018; Mørk et al., 2008; Oborn & Dawson, 2010; Okhuysen & Bechky, 2009; Rodriguez, 2015; Srikanth et al., 2016; Tsoukas, 2009; Waring et al., 2015).

In particular, divergent interests (pragmatic knowledge boundaries), such as rigid adherence to jurisdictional claims to scope of practice, presented substantial obstacles to collaboration. Consequently, the teams tended to focus on information that was shared by everyone, coinciding with findings by Faraj and Xiao (2006). Thus, my observations revealed that collaboration tended to deteriorate from the onset of teamwork, resembling the findings of Chontandriopolous (2015). This resulted in inefficient team processes and performance.

Moreover, I found that physicians were inclined to "boundary guard"[5] by personalizing knowledge claims, which is consistent with competitive boundary work (Langley et al., 2019) and corresponds with the findings of previous studies (Benoit et al., 2010; McNeil et al., 2013; Nugus et al., 2010). Thus, the physicians assumed rectitude in current boundaries by preserving hierarchies, leadership, and authority, and by expecting psychologists and physiotherapists to assimilate. This coincides with extant studies that have shown that superior professions lay claims to leadership (Bucher et al., 2016; Dingwall, 2012; Hazgui & Gendron, 2015; Salhani & Coulter, 2009).

Unfortunately, perceptions of inequality and dominance constrained physiotherapists and psychologists from sharing information, resembling the findings by Nembhard and Edmondson (2006). However, psychologists were more inclined to boundary arbitrate, accepting oversteps in certain areas while preserving others. In contrast, physiotherapists tended to boundary rebel, pushing to transcend boundaries to depersonalize knowledge claims. Yet, both professions strove to extend their boundaries through rationalization and claims for equality, resembling the findings of Huising (2014)

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[5] My findings in **article 3** illuminate three boundary strategies: (1) *boundary guarding* demarcates boundaries by separating roles and responsibilities and personalizing knowledge claims, (2) *boundary arbitrating* selectively reaffirms certain boundaries while expanding others, and (3) *boundary rebelling* dissolves boundaries by depersonalizing knowledge claims and encouraging jurisdictional overstepping.

and Bucher et al. (2016). I found that lower-status professions (physiotherapists) were more aggressively opposed to middle-status professions. Thus, tensions increased as roles became increasingly blurred, corresponding to the findings of previous studies (e.g., Brown et al., 2000; Chreim et al., 2007; Hazgui & Gendron, 2015). However, this triggered threat perceptions concerning professional identities across professions, although particularly among physicians, results which coincide with those of extant studies (McNeil et al., 2013; Mitchell et al., 2011).

Interestingly, during the *middle to late stages* of collaboration, professionals became more courageous, vulnerable, and flexible. Team members progressively reconstructed their professional identities[6], thereby extending their identity repertoires. Indeed, professionals were able to reconstruct interprofessional identities more consciously through playful experimentation. This contradicts prior claims of enduring professional identities (Reay & Hinings, 2005; Scott, 2008). Yet, the findings suggest that the pace of professional identity reconstruction varied across professions, with physicians being slower compared to professional counterparts.

Notably, my findings contrast with those of other studies, which have indicated that boundaries only temporarily blurred in interprofessional settings (Bucher et al., 2016; Finn, 2008; Pouthier, 2017; Rodriguez, 2015). Indeed, my findings showed that hierarchies and the silo mentality were overcome over time. Thus, contrary to extant studies (Addicott et al., 2007; Ferlie et al., 2005), boundaries were not found to be enduring. Notably, power reversals between professionals occurred over time, supporting the notion of duality in boundaries (e.g., Kislov, 2014; Quick & Feldman, 2014). More specifically, I found that "boundary rebelling" facilitated boundaries permeability, while

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[6] **Article 2** depicts the Identity Plasticity Model, illuminating five stages of progressive advancement in professionals' identity repertories: shattering, shielding, juggling, fusing, and embodying.

"boundary guarding" reduced boundary permeability. Moreover, professionals shifted their display of boundary strategies over time through engagement in boundary-crossing activities (team reflexivity and joint consultations), which were crucial to accomplishing knowledge transformation.

Looking into the initial phase, this dissertation emphasized that an "adventurer"[7] archetype represented interaction patterns that enabled more effective processes and performance outcomes. Adventurers are explorative, framing problems in an integrative manner and applying divergent thinking to arrive at multiple solutions. Yet, adventurers were equally concerned with alternating leadership, recognizing contributions and equality across professional counterparts. These initial interaction patterns seemed to yield more effective processes and performance outcomes. Thus, their trajectory support studies that have suggested that the initial phase has a profound influence on subsequent processes and performance (Ericken & Dyer, 2004; Gersick, 1988; Ginnett, 1990).

Overall, reconstructing professional identities and boundary rebelling led to the transcendence of disciplinary boundaries, more integrative work processes, and a more unified practice. In many situations, patients and guardians did not distinguish between the team members' professions, as team members juxtaposed competences and approaches across professionals. Thus, over time, professionals adapted competencies and approaches by their professional counterparts, which became incorporated into their specialized practice beyond the team context. Notably, informants' experiences of identity enrichment and increasing use of boundary rebelling led to boundary transgression devoid of tension. This is in line with the characteristics of the

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[7] In **article 1**, a typology of four initial interaction archetypes is developed: settlers, mensas, cuddlers, and adventurers. Adventurers are considered the most successful starters, equally cognitive- and relationship oriented.

transprofessional approach (Thylefors et al., 2005). Indeed, these findings demonstrates the unfolding journey from interprofessional- to transprofessional practice.

In summary, my dissertation highlights three core mechanisms that can sustain interprofessional collaboration: (1) The importance of an "adventurer" archetype in the initial phase to enable more effective processes and performance outcomes. (2) The plasticity nature of professional identities, in which professional identity reconstruction progressively advances identity repertoires, and (3) The importance of a rebelling boundary strategy and engagement in boundary-crossing activities to achieve knowledge transformation.

## 5.1. Theoretical Contributions

My research provides two overarching contributions to the literature on interprofessional collaboration. First, I extend and enrich the existing literature on the temporal perspective of interprofessional collaboration, which has not been sufficiently considered (Dinh et al., 2020; Goldman & Xyrichis, 2020; Xyrichis, 2020). By doing so, I generated rich insights through an in-depth exploration of the perspectives and experiences of diverse professionals on how interprofessional collaboration unfolds over time. Thus, I answered the call for a greater elucidation of how professionals themselves shape and foster interprofessional collaboration (Bourgeault & Mulvale, 2006; Xyrichis, 2020). Overall, my dissertation delineates the journey from interprofessional to transprofessional collaboration, where teams over time transcended boundaries to build a unified practice in which their competencies became mutually interchangeable. Accordingly, this extends the findings of Thylefors (2005) on how teams move along the continuum of interprofessional collaboration.

Second, my dissertation answers calls to better understand the mechanisms that sustain interprofessional collaboration over time (Bucher et al., 2016; Goldman &

Xyrichis, 2020; Langley et al., 2019; Liberati, 2017; Liberati et al., 2016; Xyrichis, 2020). My dissertation emphasizes how and why the initial phase is decisive for teams' processes and performance outcomes. By combining the literature on complex problem solving (Dörner & Funke, 2017; Funke & Frensch, 2007) with team development (Ericken & Dyer, 2004; Gersick, 1988) and team interaction patterns (Lei et al., 2016; Stachowski et al., 2009; Uitdewilligen & Waller, 2018; Zijlstra et al., 2012), I developed a typology of four archetypes and their trajectory. Importantly, the "adventurer" archetype underscores the equal importance of relational and cognitive elements of the initial phase. Thus, I extended the findings on initial strategizing (Edmondson, 2003; Edmondson et al., 2007; Nembhard & Edmondson, 2006) as well as complex problem solving, which has previously emphasized the importance of cognitive capacity (Cristancho et al., 2017; Novick & Bassok, 2005) and structure (Eichmann et al., 2019). Consequently, my research nuanced the literature on interprofessional collaboration by arguing that the "adventurer" archetype is beneficial for sustaining collaboration from the onset.

This dissertation also answers calls for a more in-depth understanding of professional identity reconstruction in interprofessional teams (Lepisto et al., 2015; Tazzyman et al., 2021; Tong et al., 2020). By combining the literature of professions (Abbott, 1988; Freidson, 1970) with that of identity work (Caza & Creary, 2016; Pratt, 2012; Svenningsson & Alvesson, 2003) and identity play (Chandwani et al., 2021; Ghaempanah & Khapova, 2020; Ibarra & Petriglieri, 2010; Stanko et al., 2020), I developed the "Identity Plasticity Model." This model highlights the plasticity nature of professional identities, by demonstrating five progressive stages of professional identity reconstruction and the mechanisms that initiate the speed of movement between phases. Thus, these findings nuance and extend the literature on identity work and play (Alvesson & Robertson, 2016; Bèvort & Suddaby, 2016; Huq et al., 2017; Kyratsis et al., 2017),

coinciding with research suggesting that they exist along a continuum rather than representing a dichotomy (Chandwani et al., 2021; Fachin & Davel, 2015; Ghaempanah & Khapova, 2020).

In addition, my dissertation underscores how professional identity reconstruction varies in pace between professions, thus nuancing research that has indicated that physicians' identities are enduring (e.g., Chreim et al., 2007; Currie et al., 2012; Reay & Hinings, 2005; Scott, 2008). My findings additionally emphasize the importance of courage, vulnerability, and flexibility to enable engagement in identity play, thus demonstrating how identity play is triggered and enacted (Ibarra & Petriglieri, 2010). Collectively, these findings expand the scholarship on interprofessional collaboration by arguing that professional identity reconstruction is necessary for advancing identity repertoires beyond the boundaries of one's own profession to successfully sustain collaboration.

Further, I developed a model that provided a deeper understanding of the process of knowledge transformation (Mørk et al., 2008; Oborn & Dawson, 2010; Pyrko et al., 2017; Tagliaventi & Mattarelli, 2013; Tasselli, 2015). In doing so, I highlighted the influence of three distinct boundary strategies on the process of knowledge transformation. Thus, my dissertation demonstrates how boundary strategies are used by various professionals over time in interprofessional teams (Langley et al., 2019; Liberati, 2017; Liberati et al., 2016; Martin et al., 2009; Powell et al., 2018) and the intersectionality between boundary strategies (Dey & Ganesh, 2017; Kislov, 2018; Kislov, Harvey, et al., 2021). Furthermore, I revealed two central boundary-crossing activities: team reflexivity and joint consultations. These activities correspond to Majchrazak et al.'s (2012) examination of how knowing is translated into practice to sustain collaboration.

In sum, this dissertation broadens our view on interprofessional collaboration by linking the literature on professions, teams, identity, knowledge, and boundary work. Thus, it provided valuable insights into how bridges are built in interprofessional teams over time.

## *5.2. Practical Implications*

Developing and implementing interprofessional collaboration is both complex and challenging. This dissertation underscores how critical it is for policy makers, healthcare managers, and team members to be mindful of the contexts and mechanisms that influence the process of interprofessional collaboration. In particular, my research provides four implications for practice.

First, at a general level, it is crucial to increase our awareness of *what interprofessional collaboration entails and necessitates in practice* on global, national, and local levels. Interprofessional collaboration is influenced by systemic, organizational, and interactional factors. A lack of institutional contexts that reinforces central aspects of interprofessional collaboration will unlikely translate into policy initiatives in practice. Unfortunately, at the structural level, policy initiatives often undermine the structural changes and economic implications of interprofessional collaboration. These challenges were also evident in this research, where management threatened to shut down the program due to the short-term costs of interprofessional collaboration, despite the positive effects on patient care and professional advancement. Similarly, studies have documented barriers in terms of uncertain funding, lack of supportive policies, absence of locations that enables physical proximity, unavailability of adequate technology, or compensation incentives needed to sustain collaboration (Rawlinson et al., 2021). Thus, awareness and actions on a systemic level that reinforce, rather than separate, professions are needed to overcome barriers to interprofessional collaboration.

Notably, health care has moved from historically independent uni-professional education and practices to more team-based and interprofessional approaches, without providing clinicians with sufficient teamwork training (Byrnes et al., 2012; Caldwell & Atwal, 2003). While this dissertation argued that proficient interprofessional collaboration is a maturation and learning process, I consider it to be crucial to invest resources into extending interprofessional training to the professionalization curriculum. To promote the mutual recognition and appreciation of complementary competencies (MacDonald et al., 2010; Xyrichis, 2020), it is essential to embed values of equality and respect, and to dismantle hierarchies (Lackie et al., 2020). This must occur at the "becoming stage" (Anteby et al., 2016) rather than merely at the executive education level.

This may help to counter the barriers of resilient identities (Scott, 2008) and demarcations in the scope of practice (Abbott, 1988; Lamont & Molnàr, 2002; Langley et al., 2019; Mørk et al., 2010; Zietsma & Lawrence, 2010) that tend to present impediments to teamwork (e.g. negative stereotyping of professional counterparts; Caldwell & Atwal, 2003; Sharpe & Curran, 2011; Wackerhausen, 2009). More specifically, I argue that to enhance awareness, the curriculum should include knowledge about and appreciation of the diverse epistemologies underpinning various adjacent professions. However, physicians have historically been placed at the apex of the medical hierarchy (Coburn, 2006; Freidson, 1970; Germov, 2005). Thus, resistance from medical associations should be anticipated, as they may feel their position to be threatened and accordingly take counteractions to influence policy (Bucher et al., 2016).

Importantly, this dissertation emphasizes that interprofessional team-based training is also required at the organizational level, within each team constellation. Certainly, my dissertation stresses that investing resources and time to develop a shared

understanding of goals, roles, competencies, and personal characteristics prior to commencing teamwork is beneficial. This may counter failures to collaborate from the planning stages of teamwork (Contandripoulos et al., 2015). Notably, the aviation industry has recognized this value, as several airlines require "speed-dating" between crew members before take-off to reduce the risk of team failure. On the contrary, health care tends to be highly reliant on clinical guidelines and protocols. However, in non-routine settings, such directions may no longer apply. Thus, spending resources on developing clinical guidelines based on the "adventurers'" initial interaction patterns may enable more effective interprofessional consultations. Nonetheless, hospital management and policy makers must ensure that teams are provided with sufficient training by experienced facilitators, and must provide sufficient time, resources, and support.

Second, interprofessionality has a profound impact on the social organization of professional work patterns, and may accordingly threaten the endurance of professional identities when changes occur in professionals' scope of practice (McNeil et al., 2013). Threats to professional identities are recognized as a core barrier to successful interprofessional collaboration (Tazzyman et al., 2021). Accordingly, my dissertation demonstrates the value of *cultivating a mindset of identity plasticity*. Hence, professionals must become aware that they are not bound by the "straitjacket" of their profession, but rather should aim to advance their identity repertoire. Disciplinary work rotations, shadowing professional counterparts, alternating leadership, and engagement in role play may help team members become more courageous, vulnerable, and flexible in experimenting with the competencies and practices of their professional counterparts. Moreover, artefacts (e.g., uniforms) may underscore professional distinctions, and efforts should thus be made to provide teams with neutral artefacts to facilitate a focus on creating a team identity.

Third, my research shows that bridging knowing in practice between disparate professions is a complex and challenging endeavor of boundary work, where multiple boundaries must be addressed concurrently. Professionals are inclined to adhere to deep-rooted knowing in practice (e.g., taken-for-granted values and epistemologies; (Kislov, Harvey, et al., 2021; Mørk et al., 2008) that may contradict their professional counterparts. Boundary work is necessary to translate and bridge separate knowing in practice across professions (Kislov, Burns, et al., 2021; Langley et al., 2019; Lindberg et al., 2019). My dissertation stresses that doing so relies on *nurturing a rebelling strategy*, one which depersonalizes knowledge claims and urges to relinquish demarcations.

Fourth, engagement in *boundary-crossing activities* (e.g., joint consultations and team reflexivity) are crucial to overcoming knowledge boundaries. Joint consultations in the gym provide teams with the opportunity to gain new insights into patients' conditions, potentially providing relevant information that could generate new perspectives on the situation. Observing patients, children in particular, in playful environments may distress them and replace many sensitive questions. Beyond the benefits from the patient's perspective, team members gain important insights from observing one another in untraditional ways. In my research, this enhanced mutual respect and facilitated adaptation and innovation in ways that were crucial to resolving many clinical cases. Furthermore, providing the time to reflect on teamwork as opposed to merely the clinical case (e.g., debrief) was found to be central to unpacking the meaning of tacit knowing in practice. However, I advise more training in how to conduct team reflections by an experienced facilitator.

Moreover, interprofessional collaboration may be a costly process in the short term. While this study did not examine the benefits from a long-term perspective, several clinical cases were successfully resolved through interprofessional collaboration.

Accordingly, this had a profound impact on the children and their families, as correct diagnoses provided treatment programs that brought many children back to school and to a normal life.

### *5.3. Limitations*

This research is not devoid of limitations, and thus outlining the scope of my research is a crucial step in making a valid contribution to the existing body of knowledge on interprofessional teams. First, this ethnography was collected at a single site in Norway, comprising nine informants who were distributed across eight interprofessional teams. In addition, data were collected during the pandemic, which in its essence accentuated the need for collaborative work. Thus, generalizability to other settings may be constrained. Different cultures or situations in the aftermath of the pandemic may yield different results. The context of health care also warrants unique consideration, as it is characterized by a number of unique features that do not necessarily converge in other settings. Nevertheless, extensive field immersion over three years enabled me to conduct an ethnographic study that has provided rich insights. Thus, I argue that valuable the insights from my findings may be transferable to other interprofessional settings, where there is high interdependence and diversity (e.g., collaboration across communities of practice, networks, etc.).

Second, participation in interprofessional teamwork was voluntary, which may contradict many contexts where hospital managers initiate interprofessional teams based on compulsory participation. Accordingly, team members might have been more open to reconstructing professional identities and to altering boundaries between professionals' contrary to if participation in teams had been compulsory. Each participant also experienced difficulties in resolving these complex issues as solo clinicians and were invested to "go an extra mile" to provide better care for these children.

Third, the study design impeded the ability to address causality. Thus, other factors may have implicated professional identity reconstruction or the boundary work of teams. Nonetheless, observing interactions as they unfolded in real time yielded ample opportunities to capture informants' experiences of teamwork.

## 5.4. Future Research

This dissertation provided ample opportunities for future research. First, I encourage further explorations of how the findings from my research could resonate with weaker organizational contexts, in which hierarchies are less evident and boundaries more fluid. Especially, I encourage a further exploration of the differences in professional identity reconstruction across cultures, specifically as related to variations in the pace of identity reconstruction and the display of boundary strategies.

Second, interprofessional collaboration may be compromised when professionals are not convinced of the benefits, for patients, for their own advancement, and for the society at large. Accordingly, we need more longitudinal research that will probe the outcome measures of interprofessional collaboration. For instance, the implications of interprofessional education and team training on professional identity reconstruction, the display of boundary strategies, initial interaction patterns, and performance outcomes to validate the effects could all be explored.

Third, my dissertation highlights the potential for intersectionality between boundary strategies and professional identity reconstruction. For instance, I would expect that boundary rebelling would boost the pace of professional identity reconstruction. Thus, further investigation into the interplay between boundaries and identity reconstruction may be an important step forward in understanding how interprofessional collaboration unfolds and consolidates. Moreover, probing the conditions that promote

identity plasticity, beyond the factors of courage, vulnerability, and flexibility, may yield important new insights into how to advance professionals' identity repertoires.

Fourth, extending the research on the interplay between boundary strategies (guarding, arbitrating, and rebelling) and the contextual conditions that instigate changes in these strategies may provide important new directions. Interestingly, I found that boundary strategies were altered by conditions beyond team dynamics (e.g., pressure from guardians caused physicians to revert to displays of boundary rebelling from boundary guarding). Thus, capturing other conditions that promote boundary rebelling may be crucial to understanding how to sustain collaboration over time.

Fifth, future research may additionally explore the potential negative consequences of translating knowing into practice across boundaries. For instance, the consequences of transprofessional collaboration for specialization and jurisdictions, and the role of power dynamics in such processes, could be assessed.

Lastly, the COVID-19 pandemic has altered the field of interprofessional collaboration in terms of research and practice (Goldman & Xyrichis, 2020; Sy et al., 2020; Xyrichis, 2020). While the future outlook and nature of interprofessional collaboration in the aftermath of the pandemic are uncertain, there is a definitive need for enhanced, coordinated action and interdependence. Edmondson and Harvey (2017) called for more research under such circumstances of "extreme teaming." Accordingly, more insights into the contextual, social, and structural conditions that foster interprofessional collaboration under conditions of extreme pressure and urgency are important. For instance, how the COVID-19 pandemic has influenced knowing in practice is translated across boundaries should be determined. In particular, understanding the process of how renegotiations of professional boundaries have occurred during the pandemic, and whether this has modified future professional jurisdictions, may yield interesting insights

into the dynamic nature of professional boundaries. Also, alterations in task work may have changed the outlook of professional identities. Accordingly, more research into how professional identities have changed over the course of the pandemic may generate valuable insights into professional identity reconstruction. Moreover, the impact of changes in collaboration between various agencies, locally, nationally, and globally, on the provision of care may direct future interprofessional collaboration. Thus, I encourage investigations of how current trends and events have long-term implications for professional education, hierarchies, power balances, professional identities, and interaction patterns in interprofessional teams. I concur with Anteby et al. (2016), who argued that research on interprofessional collaboration must consider the interlinking lens between "becoming, doing, and relating" of interprofessional collaboration to gain a better grasp of the multifaceted and complex nature of the phenomenon.

# 6. Concluding Remarks

Society is increasingly reliant on interprofessional collaboration across professions, disciplines, organizations, and countries to solve complex problems. Indeed, these unprecedented times have given interprofessional collaboration enhanced traction, altering the landscape of collaboration across the globe. However, interprofessional collaboration often does not successfully translate into practice, as systematic, organizational, and interactional boundaries impede the process.

However, exploring the temporal dynamics of interprofessional teams in this ethnographic study revealed how professionals over time were able to overcome divergences and contradictions in practices, resolve professional identity tensions, and overcome knowledge boundaries to successfully bridge practices.

Collectively, the empirical articles in this dissertation underscore the process of interprofessional collaboration and the core mechanisms that help to build bridges in interprofessional teams. In sum, interprofessional collaboration was sustained through an adventurer's initial interaction pattern, professional identity reconstruction, and boundary-rebelling strategies, which enabled teams to transform knowledge successfully across boundaries.

Thus, my dissertation has contributed to theory on interprofessional collaboration by linking it to team science, identity, and knowledge and boundary work. It is my sincere hope that the findings and contributions of this work will inspire and benefit individuals, professions, organizations, and society as a whole concerning how to implement and successfully bridge boundaries in interprofessional teams.

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## Appendix A: Modified Observation Guide

**Table A1.** Modified Observation Guide

| Observation Guide | | | | |
|---|---|---|---|---|
| **Team Number #** | **Date** | **Start Time** | **Stop Time** | **Solution to Complex Problem?** |
| Context/ Description of Patient's Issue | | | | |
| Conversation Log | | | | |
| Indicators of Focus | • How is a meeting called to order and by whom? If so, how did this person come to have this role?<br>• How is the meeting initiated?<br>• What is the quality and content of exchanged information between members? How is information shared and by whom, is information sharing equally contributed within the team? To what extent do team members listen to each other?<br>• How are roles assigned and responsibilities divided? How is leadership distributed among the team members? How does leadership occur? Is there flexibility in leadership? What is the team's assertiveness in situations where diverse professions alternate leadership?<br>• Are they courteous with each other? To what extent are team members' competence and opinions valued and recognized within the team?<br>• What are the power dynamics between team members? Are there any behaviors of dominance or authority, or submissiveness?<br>• What is the level of interactions between professionals?<br>• What is the level of disagreement? How were conflicts resolved?<br>• Do team members provide support, do they correct errors?<br>• What information is used by the teams to coordinate their tasks/activities? Did anyone ask for clarification? If yes, who spoke up? Were team members encouraged to offer opinions?<br>• What is the propensity for team members to consider alternative solutions from other professions and to appraise that input as correct?<br>• What activities do they engage in to bridge knowledge diversity? Did these activities change interaction style or communication between team members? | | | |

| | | |
|---|---|---|
| | • How do the professionals adapt to their team members' ways of asking questions to retrieve important information (do they provide feedback; how do they incorporate other professions' language into the conversation style?) | |
| Specific Non-verbal Cues | | |
| General Climate or Mood of Team Members | | |
| Joint Consultations? Sequential? Combination? | • Nature of activity<br>• Who is taking part?<br>• How is the activity organized/unfolded?<br>• Division of roles and responsibilities?<br>• Decisions made by whom and for whom? | |
| Perceived Team Learning Climate | | |
| Impressions about Satisfaction or Dissatisfaction | | |
| Impressions about Satisfaction or Dissatisfaction | | |
| Did Patient Benefit from Interprofessional Consultation? | | |
| Indicators for Reflexive Comments to Memo/Diary | • How did this experience make me feel about the team's collaboration practice?<br>• What was the most interesting experience of the observation and why?<br>• What challenges of collaboration do I identity as salient? How are these resolved/not?<br>• What could have been done differently?<br>• How do I perceive informants to consider my observing presence? | |

# CHAPTER I

# The First Decisive Minutes: How Initial Interaction Patterns Matter for Complex Problem Solving in Interprofessional Teams

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Although interprofessional teams are increasingly relied on to solve the rising challenges of complex and ambiguous problems, prior research has demonstrated that these teams are fraught with interactional problems that impede their effectiveness. While previous studies have emphasized the importance of initial team interactions, the distinctive characteristics of the resulting interaction patterns and how they influence team processes and outcomes remain unclear. This ethnographic study observed 22 interprofessional clinical consultations and investigated the initial team interactions that occurred during them. We found that early patterns in relational tones and cognitive approaches were critical in determining the subsequent processes and outcomes. From the distinct initial interaction characteristics, we built a typology of four initial interaction archetypes: Settlers, cuddlers, mensas, and adventurers. Our results illuminate how these archetypes strongly relate to team processes and performance outcomes. We conclude by explaining how our study extends the literature on team development, team interaction patterns, and complex problem solving in interprofessional teams.

*Keywords:* initial interaction patterns; initial phase; teams; team processes; interprofessional collaboration; complex problem solving; trajectory; typology

# Introduction

**Physiotherapist (PT):** The patient expects to get treatment in the form of a life-changing pill when meeting this team. The time that we spend right at the beginning of the consultations to clarify their expectations is therefore important… We need to create a mutual understanding of the purpose of these consultations and agree on how to approach the patient's issues.

**Medical Doctor (MD):** What do you mean? Are we meant to have social meetings before the consultations commence? [Laughter]

**Psychologist (PS):** No, listen… Spending time to clarify the goals of the conversation right at the start enables us to agree on how to approach the day. It allows us to become more flexible and adaptable. It also makes everyone feel safer and more included in the team.

**MD:** We have never spent any time discussing team "rules" before. Until you "walk the path," you really do not know where it will take you...

**PS:** Although we have improvised until now, it never seems to work out well!

**PT:** There have been instances in which parents have informed us more than an hour into the consultation that they have no idea why they are meeting the team!

**PS:** Yes, that is unfortunate… I also find it very uncomfortable when you doctors start the initial conversation with, "Hi, what are you here for?" or, "How may I help you?" This has occurred several times without even having introduced the rest of the team. It raises your role as a doctor while undermining my role as a psychologist. Also, if the process uses a purely somatic focus from the start, limited emphasis is placed on the psychic well-being of the patient… This limits our creativity, as we disregard important information that could be indispensable in solving these cases…

**MD:** I disagree. Although it can be tough to start the conversation with difficult and embarrassing somatic questions, it is how one always approaches a patient from a medical point of view. This is how medicine has been practiced for decades, and it is recognized as highly effective.

**PT:** Yes, but it does not seem to work. Maybe interprofessional collaboration requires us to work differently?

**MD:** Well, yes, maybe lack of a proper initial discussion on the processes is the core reason for our coordination challenges…

The above vignette originates from our field study of complex problem solving in 22 interprofessional clinical team consultations. It contains direct quotes obtained from our observations of a team's lunch meeting following a collective patient consultation. In this study, clinical teams were tasked with solving complex chronic problems, including mental and somatic problems, in children that had remained a 'diagnostic mystery'

despite multiple prior consultations with experts. The patients risked being placed on early disability in the absence of suitable treatment, which would have profound negative social impacts on them, their families, and society at large. Thus, great hopes and pressures were placed on the use of interprofessional teams to resolve their complex problems. This vignette underscores that the first few minutes of a patient consultation seem to be crucial in determining a team's ability to successfully solve complex problems. Because the possible strong link between the initial interactions in professional teams and their processes and performance outcomes intrigued us, we formed the following research question: *What are the characteristics of the initial interaction patterns in interprofessional teams, and how do they influence these teams' processes and performance outcomes?*

Unfortunately, research on initial team interactions is very limited (Ericken & Dyer, 2004; Lei et al., 2016; Uitdewilligen et al., 2018; Zijlstra et al., 2012). This is surprising because the team literature strongly indicates that successful collaboration hinges on a team's ability to develop a solid foundation early on (Gersick, 1988; Hackman, 2002). This is based on the premise that early team actions tend to be incredibly persistent, substantially influencing the subsequent phases of team development and performance (Cohen & Bailey, 1997a; Ericken & Dyer, 2004; Feldman, 1984; Gersick, 1988; Hackman, 2002a; Zijlstra et al., 2012). Empirical studies have shown that teams that foster favorable collaborative conditions from the very start outperform teams that do not foster these collaborative conditions (e.g., Brown & Eisenhardt, 1997; Zijlstra et al., 2012). Hence, initial team conversations and interaction patterns significantly impact future performance strategies and behavioral patterns (Bettenhausen & Murnighan, 1985).

While the literature has highlighted the value of the initial phase in teamwork, it inadequately portrays the characteristics of initial team interactions. Hence, we have limited guidance on which distinct interaction patterns yield the conditions necessary for an efficient start. This lack of knowledge is unfortunate, given that directions on how to foster favorable interaction patterns from the onset may support a team's ability to solve complex problems. Contandriopoulos (2015) argued that interprofessional collaboration often derails already at the initial stages of teamwork. Thus, a deeper understanding of how interprofessional teams can start "on the right foot" and foster teamwork is particularly vital in institutionalized health care.

In this context, professionals tend to operate in uniprofessional silos, and their attempts to share knowing in practice across professional boundaries are often unsuccessful (Contu, 2014; Ferlie et al., 2005; Hall, 2005; Oborn & Dawson, 2010; Yeo, 2020). Professionals are trained to view the world through distinct and sometimes opposing lenses (Anteby et al., 2016). Accordingly, when professionals diverge in their understandings of the factual and value components of a problem, their focus areas and framings of the problem itself become more dissimilar, consequently contributing to and often resulting in separate sets of solutions. Moreover, inherent practice differences between clinical guidelines and temporal variations in taskwork (Haidet & Paterniti, 2003) may challenge a professional's ability to take other perspectives into account (Boland & Tenkasi, 1995). Knowledge production is further complicated by jurisdictional boundaries that delineate and control the scope of professionals' practices (Abbott, 1988; Freidson, 1986, 2001; Lingard et al., 2012; Long et al., 2006), gives rise to hierarchies (Mackintosh & Sanall, 2010), and medical dominance in leadership and decision-making (Benoit et al., 2010; Coburn, 2006). These confinements are considered to be deeply internalized and robust in medical professionals (Drinka & Clark, 2016; Scott, 2008).

Evidently, interprofessional collaboration faces major challenges beyond the strain of complex problem solving. Because inefficiencies in interprofessional collaboration have devastating consequences on clinical care (Powell & Davies, 2012), it is crucial to bridge the differences between professionals (Goldman et al., 2016; Xyrichis et al., 2019). Hence, isolated knowledge must cross professional boundaries (Gherardi & Nicolini, 2002; Nicolini et al., 2003).

This paper aims to identify the characteristics of initial interaction patterns and examine their links to team processes and performance outcomes. The contributions of this paper are threefold. First, we contribute to the literature on team development. While the previous literature on team has mentioned the potential value of the formation phase in general (e.g., Ericken & Dyer, 2004; Gersick, 1988; Gersick & Hackman, 1990), we extend this literature stream by teasing out the core characteristics of initial interactions. Second, we contribute to the recent literature on team interaction patterns (e.g., Stachowski et al., 2009; Uitdewilligen & Waller, 2018; Zijlstra et al., 2012). Although this literature stream provides very detailed depictions of verbal and non-verbal team activities in simulated situations, it does not focus on the initial phase in particular. We combine these two streams to develop a typology of initial interaction patterns and, importantly, extend the previous literature by showing how distinct initial interaction patterns are systematically linked to team processes and outcomes. Third, we contribute to the literature on complex problem solving (Dörner & Funke, 2017; Funke & Frensch, 2007). Previous research has primarily focused on complex problem solving at the individual level, although, arguably, complex problems typically require experts to work together in teams. Ultimately, we add to this area of the literature by developing a typology of team interaction patterns, collected into archetypes, and illuminating how interprofessionals can start on the right foot when working in teams.

# Literature Review

## *Complex Problem Solving in Teams*

Complex problem solving is defined as "a collection of self-regulated psychological processes and activities, necessary in dynamic environments to achieve ill-defined goals that cannot be reached by routine actions" (Dörner & Funke, 2017, p. 6). Complex problems are multifaceted with many "hidden" facets, complicating their formulation, assessment, and resolution (Rittel & Webber, 1973). The successful resolution of unstructured and ambiguous nature of complex problems (Ellspermann et al., 2007; Reiter-Palmon & Illies, 2004) requires highly cognitive (DeChruch & Mesemer-Magnus, 2010; Hageman & Kluge, 2017) and relational skills (Barth & Funke, 2010; Spering et al., 2005). According to Funke (2012), cognitive activities and behaviors aid in reducing the barriers between a given start state and an intended goal state. Hence, understanding the importance of how a problem is defined from the start is central to complex problem solving, given that it builds a foundation for interactional team expertise (Bammer et al., 2020).

Notably, complex problem solving in teams necessitates high interdependence and coordination, frequent interaction, and successful information integration (Hageman & Kluge, 2017). Selective focus in problem areas pose the risk of missing important aspects, and feedback failures in information sharing may inhibit successful adaptation of the knowledge from professional counterparts (Cristancho et al., 2017; Novick & Bassok, 2005). Thus, these conditions impose strong demands on team processes. In particular, during coordination of team members' expertise, where the creation of shared situational awareness and negotiation of conflicting perspectives is crucial. However, the literature on complex problem solving has primarily focused on the cognitive capacity of individual problem solvers. Nonetheless, recent advances have directed attention toward

the value of interpersonal skills and behavioral aspects (Love et al., 2021; Wiltshire et al., 2018).

Although the literature on complex problem solving in teams is in an early stage, it suggests that the start is a crucial phase (Funke, 2012). In support of this argument, Eichmann et al. (2019) emphasized the importance of planning in the early stages to successfully solve complex problems. Moreover, Wiltshire et al. (2018) unveiled distinct qualitative phases during team-based complex problem solving, highlighting the critical role of phase transitions. To better understand the initial phase of complex problem solving in teams, we precede to address the literature on team development.

### *Team Development Theory*

Generally, the team development literature asserts that teams tend to progress predictably and steadily through a series of phases (Drexler et al., 1988; Tuckman, 1965; Tuckman & Jensen, 1997). For instance, Gersick's (1988) work on team progression demonstrated that teams form implicit frameworks that guide their future behaviors almost immediately after their establishment. For instance, in one of the teams she studied, interactions that lasted less than one minute during the formation phase had a profound impact on the interaction patterns that lasted throughout the first half of the team's 12-week calendar. Gersick (1988) underscored that the events that occurred during the launch meetings influenced the teams' attitudes and activities past the midpoints of their projects. Similarly, focusing on airline crews, Ginnett (1990, 1993) suggested that the pilots' approaches to pre-flight briefings influenced the crews' behaviors and perceptions for the entire duration of their work together. Overall, these studies have established that the initial phase is vital to how teams' function.

The literature from adjacent domains has also emphasized the importance of initial trajectories. Although the psychoanalytical literature generally applies to

individuals rather than teams, it highlights how the first few minutes in therapeutic dyads can significantly predict central issues that affect the course of treatment (Ginette, 1986; Pittenger et al., 1960). Similarly, initial interactions have been found to influence perceptions and outcomes in negotiations (Bettenhausen & Murnighan, 1985). Collectively, the past research suggests that initial team interactions, even those that occur in the very first minutes of teamwork, set lasting precedents for the enduring dynamics.

These early studies provide valuable insights into the major role of the initial phase in teamwork. Moreover, they have sparked further studies on the impact of the initial phase on the subsequent processes and outcome variables. These studies have operationalized the initial phase in various ways, including both positive (e.g., initial strategizing and initial team strategies) and negative connotations (e.g., inconsistencies in goal perceptions and initial negative experiences). Initial strategizing has been found to boost psychological safety, trust, and mutual respect (Edmondson, 2003; Gersick & Hackman, 1990) because it encourages lower-status professions to speak their minds (Edmondson, 1999, 2002, 2003; Edmondson et al., 2007; Nembhard & Edmondson, 2006), reduces role conflicts (Edmondson, 2003; Valentine et al., 2012), and improves the work environment (Grumbach & Bodenheimer, 2004). Initial team strategies have also been reported to bolster team coordination (Aaron et al., 2014; Aiken & Keller, 2007; Fisher et al., 1995; Harris & Harris, 1996; Hickman & Creighton-Zollar, 1998; Janick & Bartel, 2003; McDowell et al., 2011; Wolley et al., 2008), performance (Faraj & Sproull, 2000; Smith et al., 1990; Weingart, 1992), and team satisfaction (Lepine et al., 2008).

Furthermore, inconsistencies in goal perceptions have been demonstrated to impede information processing (Matthew et al., 2007), obscure coordination (Bunderson & Sutcliffe, 2002; Van Der Vegt & Bunderson, 2005), initiate conflicts, and hamper innovative solutions (Okhuysen & Eisenhardt, 2002). Initial negative experiences have

resulted in atmospheres of distrust, role confusion (Edmondson, 2003; Valentine et al., 2012), and conflicts (Pype, Mertens, 2018). Patriotta and Spedale (2011) showed that a *lack of initial negotiations* on the minimal consensus for boundary relations in work groups led to role ambiguity and conflicting interaction patterns that were only resolved by separate silo work. Further, studies have emphasized that teams that lack collaborative planning tend to underperform compared to similar teams that spend considerable time planning (Wolley et al., 2008). A few studies have also shown that early team actions concerning the clarification of expectations, establishment of clear norms, and use of ground rules benefit teams by creating a shared understanding of the goals and responsibilities, thus enabling effective team processes (Ericksen & Dyer, 2004; Hackman, 2002a; Hillier & Dunn-Jensen, 2013; Mathieu & Rapp, 2009; Sverdrup & Schei, 2015; Sverdrup et al., 2017).

Collectively, these findings confirm the vital function of the initial phase and its impact on future team processes. Nonetheless, there are surprisingly few empirical studies on the specific initial interaction patterns that may arise and how they may impact team processes over time (Ericken & Dyer, 2004; Zijlstra et al., 2012). To address this issue, we draw on the recent literature on team interaction patterns.

*Team Interaction Patterns*

Team interaction patterns can be defined as consistent and recurrent sets of different types of verbalizations and non-verbal actions that are intended to promote collective action and coordination (Zellmer-Bruhn et al., 2004). Interaction patterns differ from routines in that they are not bound by rules or customs (Carvalho et al., 2007). These patterns develop quickly, and serve critical functions such as directing attention, sharing knowledge, and determining the next steps in a process. Thus, highlights which actions team members can expect from one another while collaborating (Cohen & Bacdayan, 1994).

Although the literature on initial interaction patterns is scarce, a few recent contributions have provided valuable insights (Uitdewilligen et al., 2018). First, Stachowski et al. (2009) conducted an observation study of 14 crews and showed that during simulated critical non-routine situations, the high-performing crews exhibited fewer, shorter, and less complex interaction patterns than the low-performing crews. Compared to the ineffective crews, the effective crews were also able to free themselves from standardized procedures. Second, Zijlstra et al. (2012) observed 18 swift-starting flight crews and found evidence of the early emergence of specific interaction patterns. Compared to the ineffective teams, the effective teams exhibited patterns that were more complex and reciprocal, and also had more stable durations. Third, Lei et al. (2016) determined that pattern length, pattern complexity, and actor switches predicted team effectiveness in a sample of 11 flight pairs who switched between carrying out routine and non-routine situations. Fourth, Uitdewilligen et al. (2018) observed nine three-person firefighting simulations over three days and indicated that interaction patterns emerged over time. This was particularly obvious for the teams that shared similar taskwork models, which helped them become more effective.

Overall, these studies vary in terms of the studied phases, tasks, contexts, and methods. All researchers used simulations rather than observing the teams in their natural contexts, and variations between nonroutine and routine tasks in these studies. Ultimately, it is difficult to make firm conclusions about general interaction patterns based on these studies beyond recognizing that interaction patterns will develop, sustain, and impact team processes and performance outcomes. Indeed, we lack a solid theoretical foundation that identifies, describes, and distinguishes between the diverse characteristics of initial interaction patterns. This knowledge is important to help teams foster favorable

interaction patterns from the onset, particularly in the context of interprofessional team consultations.

Limited attention has been directed toward comparative analyses of whether teams qualitatively display similar interaction patterns (Li & Roe, 2012). We argue that understanding the diverse characteristics of initial interaction patterns may be critical to improving our understanding of how and why early interactions shape future team dynamics in interprofessional teams. Therefore, we tease out the characteristics of early interactions in real-time interprofessional consultations and show how these interactions shape team dynamics and outcomes.

## Methods

This ethnographic study took place in an inpatient children's clinic at a regional Norwegian hospital from 2018 to 2021. Ethnographic studies enable flexible immersion in the context, are responsive to emergent data (Cunliffe, 2010; Gobo, 2008), and are considered suitable for mapping interactions (Watson, 2011) and coordinative activities (Sandberg & Tsoukas, 2011). Accordingly, we selected an ethnographic approach to explore diverse professional perspectives and team interactions as they unfolded in real time.

### Research Setting

The first author was granted permission to trail eight interprofessional teams. These teams were developed in the hope of reversing the recent national increase in chronic complex conditions in children (age 6 to 12 years) (Heggestad et al., 2020; Lygre et al., 2020). The children had a history of multiple prior consultations with experts and lacked resolution for their health problems This issue is known as multimorbidity, which is defined as the co-occurrence of several chronic diseases or conditions, encompassing physician and

mental domains (Almirall & Fortin, 2013), that deeply impact patients' lives and their utilization of specialized health services (Smith et al., 2012). Multimorbidity represents the most difficult aspects of complex problem solving in health care (Salisbury, 2012; Salisbury et al., 2014), as the nature of the problem is highly complex, unstructured, and ambiguous. It is a knowledge-intensive task that requires flexibility, adaptability, tight coordination, and consequently necessitate, an extreme form of collaboration among diverse professionals (Huffman et al., 2014). If a child's issues are not resolved, they are at risk of being placed on early disability, which would have profound negative social consequences on them, their family, and society as a whole. The interprofessional consultations in this study were viewed as a potential last resort for potential problem resolution by the patients and their clinicians. Due to the unfamiliar consultation process and complex tasks, the hospital offered the coaching on three occasions by an independent consultant, to provide the team members with equal opportunities to evaluate their progress and discuss their performance.

*The Consultation Process*

Figure 1 shows the phases of the interprofessional patient consultation process, which lasted from four to seven hours. Note that the patients and guardians were present for four of the seven steps of the process.

**Figure 1.** The Consultation Process
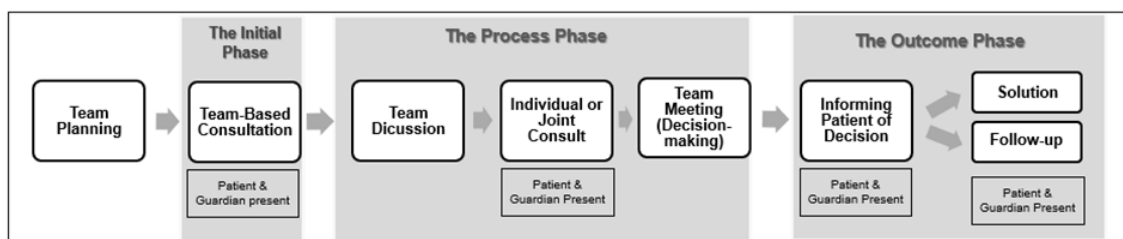
Each team typically started with a planning phase that lasted approximately 30 minutes, during which the team members jointly reviewed the patient's history and shared the information that they considered to be relevant. This phase also entailed the division of responsibilities among team members regarding the structure of the consultation (e.g., who should lead the conversation with the patient). During the initial phase (approximately 15 minutes), the team members consecutively met with the patient and their guardians in a team-based consultation. The team members jointly discussed the patient's current conditions and medical history before deciding how to coordinate their consultations (e.g., individually or as a team). We labeled the next phase as "the process phase" and had three steps: i) a team discussion to decide on the coordination of activities (e.g., consultation rooms, means of consultation, and timing), ii) the consultation itself, and ii) a collective team meeting to share relevant information and form a decision. In the final phase, which we termed "the outcome phase," the team members informed the patient and their guardians of their decision. The patient and guardians were given the opportunity to respond to this decision. The teams either solved the case or initiated a follow-up consultation in situations that required further diagnostic testing.

*Sample*

We applied purposive theoretical sampling. Hospital management recruited experts in multimorbidity. Their participation was voluntary. This study included nine experts in total, representing eight unique team combinations with three team members: A psychologist (PS), a physiotherapist (PT), and a physician (MD) who specialized in either gastroenterology or neurology (see Table 1).

**Table 1.** Overview of the Sample

| Teams | Medical Doctor | Psychologist | Physiotherapist |
|---|---|---|---|
| 1 | $MD_1$ | $PS_1$ | $PT_1$ |
| 2 | $MD_2$ | $PS_1$ | $PT_1$ |
| 3 | $MD_1$ | $PS_1$ | $PT_3$ |
| 4 | $MD_2$ | $PS_1$ | $PT_3$ |
| 5 | $MD_3$ | $PS_1$ | $PT_3$ |
| 6 | $MD_4$ | $PS_1$ | $PT_2$ |
| 7 | $MD_3$ | $PS_2$ | $PT_3$ |
| 8 | $MD_2$ | $PS_2$ | $PT_2$ |

*Note:* $MD_1$ and $MD_4$ = Neurologist, $MD_2$ and $MD_3$ = Gastroenterologist.

This novel context is particularly suitable for understanding the initial interaction patterns in interprofessional teams, their processes and performance outcomes. First, multimorbidity issues are one of the toughest challenges in complex problem solving because teams cannot rely on clinical guidelines, checklists, and formal routines to guide their actions.

Second, collective consultations that span disciplines are extremely rare (Kerrissey et al., 2021), as somatic and mental practices are traditionally carried out sequentially and autonomously in separate clinics. None of the professionals had prior experience in interprofessional teamwork and were therefore challenged by both the complex problems they tried to solve, and the collaboration process itself.

Third, although the team members' areas of expertise were interrelated, somatic and mental practices inherently contradict one another (e.g., means of eliciting and assessing patient information, structural approaches, and taskwork timings). More specifically, physicians and psychologists may consider different information to be relevant. Physicians are trained to systematically eliminate problems until they have identified the core issue and can thus discover the corresponding solutions, while psychologists expand the scope of their professional interest to encompass several relevant factors (Qualls & Czirr, 1998). Also, specialists vary in their consideration of

psychosocial aspects. Epistemic cultures (Knorr Cetina, 1999) account for variations in worldviews, values, norms, and the decision-making hierarchies that these professionals reside in. Institutionalization has made these professional distinctions highly enduring (Anteby et al., 2016).

Consequently, a team may ignore the potential for creativity and innovation to solve a given problem. The literature has inadequately explored the dynamic contexts of interprofessional teams (Dinh et al., 2020; Lanceley et al., 2008; Tazzyman et al., 2021; Xyrichis, 2020). Evidently, this novel setting is suitable for understanding how various professionals interact and communicate to bridge their inherently opposing perspectives.

### *Data Sources*

While this ethnographic study used comprehensive data, it primarily relied on non-participant observations made during clinical consultations (N=22 cases, 128 hours, and 265 single-spaced field notes). Observations capture rich and detailed descriptions, enabling flexibility in research procedures (Cunliffe, 2010; Hammersley & Atkinson, 2019; Van der Geest & Finkler, 2004). Table 2 provides an overview of the data sources used in this study, while Figure 2 displays an overview of the data collection process and its sources.

We were fortunate to enter the research site prior to the commencement of the teams, enabling us to focus on how the process unfolded, in line with recommendation by Langley (1999; 2013). Few studies have conducted field observations of interprofessional teams over time (Morgan et al., 2015). Regardless, this approach enabled a close-up view of the complexities and contradictions of complex problem solving in interprofessional collaborative practice while it unfolded in real time. During the period of this study, we observed a total of 22 unique patient consultations.

**Figure 2.** Timeline of the Events and Data Collection
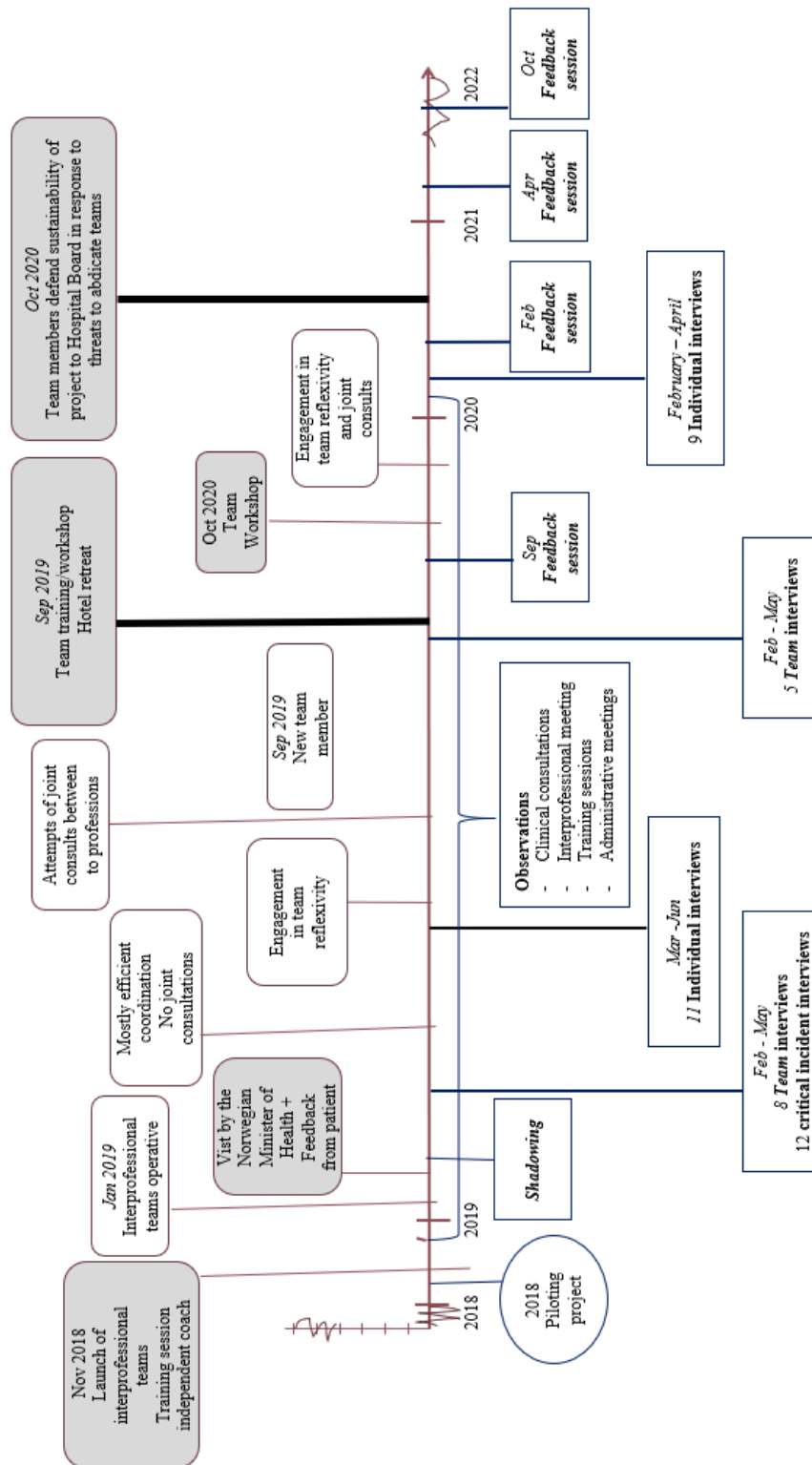


*Note:* The rounded boxes above the timeline highlight important events that occurred during data collection. The square boxes below the timeline display an overview of the data collection process.

**Table 2.** Overview of the Data Sources

| Data | Material | Hours | Pages |
|---|---|---|---|
| Observations | 45 team meetings (2–4 h) | 400 | 265 |
| | 22 interprofessional clinical consultations (4–7 h) | | |
| | 12 follow-up consultations (120 min) | | |
| | 4 training sessions (2–4 h per event) | | |
| | 24 interprofessional team lunches (30–60 min) | | |
| | 3 team workshops (6–8 h) | | |
| | 3 team workshops (6–8 h per workshop) | | |
| | Administrative meetings | | |
| Shadowing | Individual team members (~1 h) | 9 | 38 |
| Video Observations | 2 video reports (30 min) | 1 | 11 |
| Formal Interviews | 20 individual interviews (120 min) | 40 | 413 |
| Informal Interviews | 13 team-based interviews (40–60 min) | 24 | 177 |
| | 7 individual interviews (15–30 min) | | |
| | 15 critical incident interviews (30–60 min) | | |
| | 4 collective feedback sessions | | |
| Informal Conversations | Hallway conversations, discussions during formal dinners, informal coffee and lunch conversations, etc. | 64 | 53 |
| Documentary Data | Protocols, communication logs, emails, internal reports, newspaper articles, pilot reports, etc. | - | 170 |
| **Total** | | **538** | **1127** |

The number of consultations varied across teams due to the conflicting schedules of the team members and cancelations of patient appointments. In line with Eisenhardt (1989), we viewed each consultation as a single case, thus relied on replication logic to obtain variance between cases. This approach helped us to better understand the development of the teams' start-up activities related to team composition, familiarity, and learning over time. Table 3 displays the temporal overview of these consultations.

**Table 3.** Temporal Overview of the Consultations per Case

| Teams | Cases | | | | | | | Total cases |
|---|---|---|---|---|---|---|---|---|
| | February | March | April | May | June | October | November | |
| 1 | 1 | 6 7 | | 12 13 14 | | | 22 | 7 |
| 2 | 2 3 | | 11 | | | | | 3 |
| 3 | | 4 5 | | | 17 | | | 3 |
| 4 | | 8 | | 15 16 | | | | 3 |
| 5 | | 9 10 | | | | 20 | | 3 |
| 6 | | | | | | 18 | | 1 |
| 7 | | | | | | 19 | | 1 |
| 8 | | | | | | | 21 | 1 |
| **Time** | February | March | April | May | June | October | November | 22 |

Non-participant observations are widely utilized as this approach is considered to be a relatively unobtrusive to informants (Creswell, 2013). To reduce the impact of retrospective sense-making (DeWalt & DeWalt, 2011), field notes real-time observations provided detailed records of the events as they unfolded. Thus, helped us to understand the patterns of the team's behavior within a given case, which is highlighted as important by Watson (2011).

The focus on initial interaction patterns emerged as salient during our early observations. It became apparent that the teams developed various interaction patterns very early on that seemed to influence their successive processes and performance outcomes. We therefore decided to scrutinize the initial phase more closely. Doing so, we used additional data sources (e.g., field notes from critical-incident interviews and documentary data) to triangulate and augment observations. The first author probed into the informants' perceptions of the early interaction patterns during interviews. Formal interviews lasted 120 minutes on average, were tape recorded and transcribed verbatim. The informal interviews were based on the critical incident technique (Butterfield et al., 2005; Flanagan, 1954) and complemented by verifying and further exploring our understanding of the teams' actions during the consultations.

Member checks were carried out through several feedback sessions, and the team members were given an opportunity to comment on whether our interpretations aligned with their own experiences of the events. We obtained ethical approval from the Norwegian Centre for Research Data (NSD) and the Regional Committees for Medical and Health Research Ethics (REK) before commencing this study. Written consent of all team members as well as the patients' guardians were obtained by the hospital coordinators prior to their participation, and the team members were anonymized according to their profession.

*Data Analysis*

Preliminary analyses occurred concurrently with data collection. During informal conversations with several team members, we noted that the diverging behaviors of team members and their contradictory approaches during consultations presented clear challenges. In particular, the team members emphasized how their early conversations with their patients influenced the focus of preceding phases of the consultation. As this sensitized our focus, we approached our data openly and applied a grounded theory approach (Glaser & Strauss, 1967) that allowed for codes to emerge inductively (Miles, Huberman, & Saldaña, 2014). We utilized NVivoPlus 12 to form *in vivo* codes, subsequently connecting interlinks between data. Reading through the field notes from our observations, we assigned rough emic codes to chunks of data before comparing codes across cases. The data indicated that early interactions seemed to have a profound effect on the subsequent team processes and outcomes.

Next, the fine-grained coding process followed a template analysis approach (King, 2012), relying on the principles of a within- and across-case analysis framework (Miles & Huberman, 1994). The purpose was to obtain a condensed and detailed description of the initial phase, leading to concepts and categories that described the data (Elo & Kyngäs, 2007). We conducted the within-case analysis by scrutinizing the content of each consultation phase (as displayed in Figure 1) and applying emic codes to identify the characteristics of each phase. Importantly, we coded each phase independently to ensure that the characteristics of the initial phase did not influence the coding of the subsequent phases. In total, our within-case analysis identified 28 fine-grained codes: 10 in the initial phase, 14 in the process phase, and four codes in the outcome phase.

Successively, we aggregated the codes, yielding three dimensions in the initial phase, two in the process phase, and one in the outcome phase. We iterated the coding

scheme multiple times to ensure that the codes were tightly grounded (Orton, 1997), moving back and forth between data and analysis and resolving coding discrepancies with consensus.

Focusing on the initial phase, Figures 3a, 3b, and 3c display the 10 characteristics that make up various initial interaction patterns — introduction, disruptions, purpose, goals, leadership, power differences, swift trust, patient inclusion, problem focus, problem orientation, and problem approach — and demonstrate how they were aggregated into the three dimensions of cognition, relation, and structure.

*Introduction* refers to whether the teams introduced themselves individually or if one person introduced all members. *Disruptions* relate to whether there were interruptions or delays during the initial phase. *Purpose and goal discussion* assesses whether the first conversation with the patient or guardian revolved around asking detailed and sensitive somatic questions rather than clarifying the goal of the consultation. We aggregated these three characteristics into the *structure* dimension.

*Leadership* relates to whether one person was in charge or if leadership was distributed in the initial phase. *Power differences* determine whether the first conversations were dominated by individuals with a certain profession, often the medical doctors, or if there were fewer hierarchies and boundaries present (i.e., staying within one's own scope of practice) during the first conversations. *Swift trust* indicates immediate trust and recognition between team members as opposed to immediate tension. *Patient inclusion* reflects whether the patient was invited as an active participant or merely pacified. For example, some teams allowed the patient to visualize their problems on a whiteboard, which enabled active participation. We aggregated these four elements in the *relational* dimension.

*Problem focus* represents whether the team or the patient defined the focus on the core problem. *Problem orientation* is concerned with the boundaries in which the problem is manifested (i.e., oriented around a single disease or multiple diseases). *Problem approach* shows the differences between convergent thinking and divergent thinking, given that one can apply either way of thinking while focusing on a single disease or multiple diseases. We aggregated these three elements in the *cognitive* dimension. The elements and aggregated dimensions of the process and outcome phase are displayed in Appendix A (Figures A1 and A2).

Next, we divided these 10 characteristics into high-, medium-, and low-quality categories based on the findings from the team literature. We cross-checked our results during feedback sessions with the team members. Table 4 provides an overview of the scoring of these characteristics, including examples from the 22 cases. The classification of the 10 characteristics into high-, medium-, and low-quality start patterns allowed us to further categorize and score the 22 individual cases, resulting in 7 high-quality starters, 9 medium-quality starters, and 6 low-quality starters. These results are displayed in the right column of Table 5. The ranking was based on an average score across the 10 characteristics when they were equally weighted. As displayed in Appendix B, we carried out similar procedures for the process and outcome phases.

**Figure 3a.** Data Structure – Structural Dimension
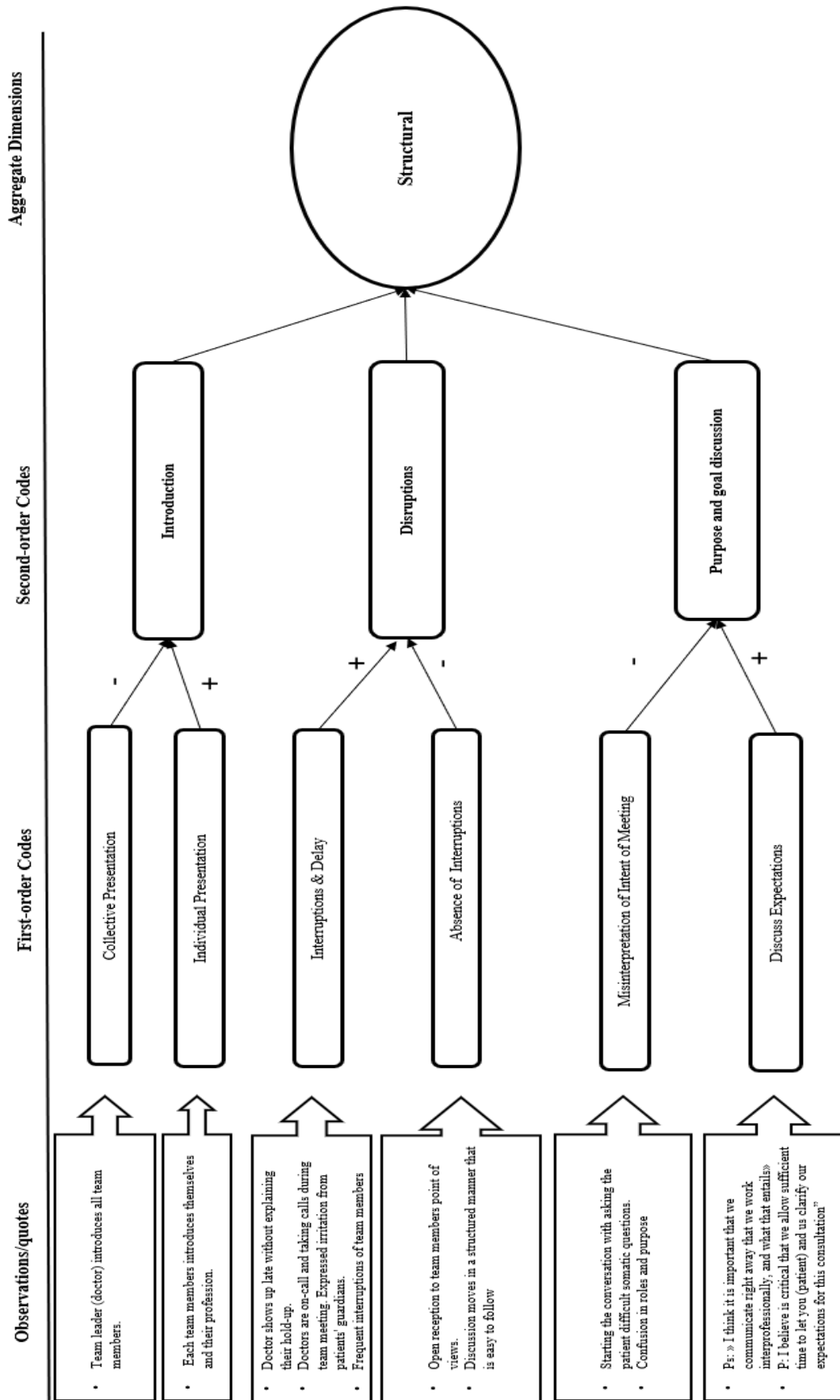
**Figure 3b.** Data Structure – Relational Dimension
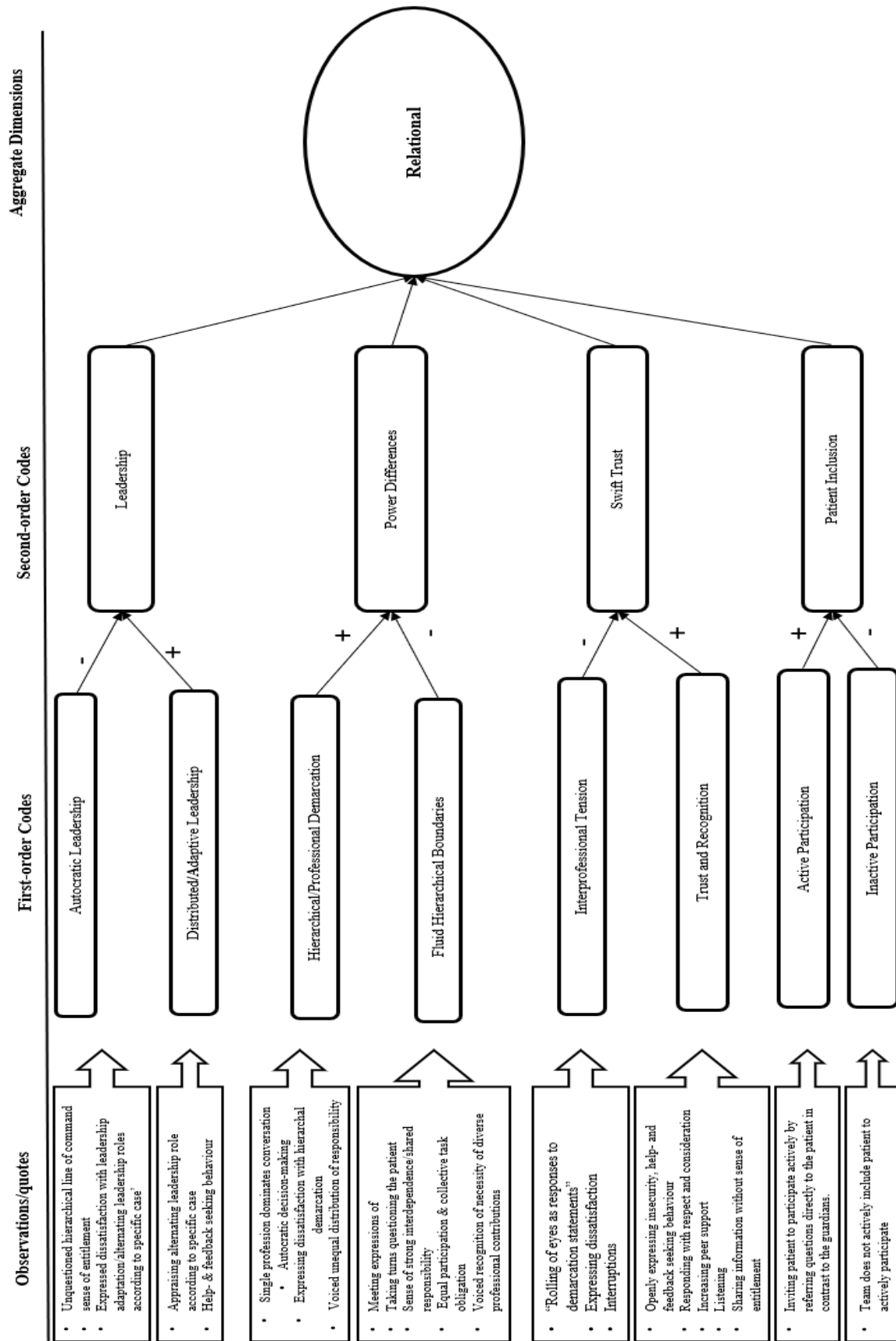
**Figure 3c.** Data Structure – Cognitive Dimension
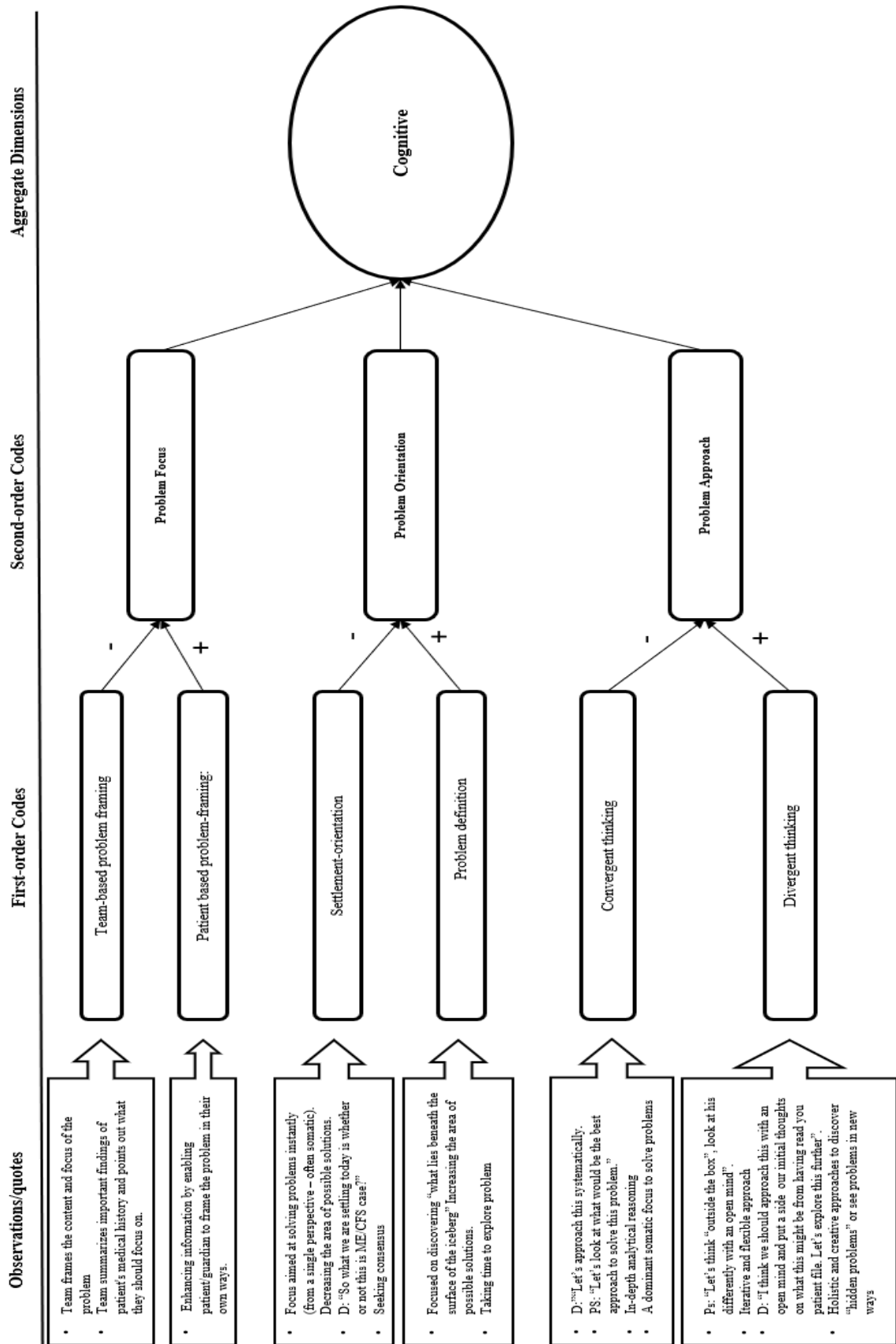
**Table 4.** Description and Scoring of the Characteristics of the Initial Phase

| Characteristic | Description | Low | Medium | High |
|---|---|---|---|---|
| Introduction | How the team and various professionals were introduced | The team members introduced themselves (n=13) | N/A | One team member introduced all team members (n=9) |
| Disruptions | The number of delays, interruptions, or disturbances that occurred within the initial phase | Highly disruptive nature (n=5), primarily concerned with the on-call paging of doctors in the middle of patient consultations | N/A | Low disruption levels (n=17) |
| Purpose and Goals | Discussions on expectations, obligations, and whether goals were set in the meeting | The teams that spent limited time discussing expectations or setting goals received low scores (n=8). E.g., case #2. *There is no presentation of how the team approaches problems interprofessionally or explanations of why the patient has been called to attend this consultation. The psychologist seems very disturbed by the deficient introduction and desperately tries to address the issue without success. The doctor starts the conversations by asking the patient a range of detailed somatic questions. MD: "Hello, what can we help you with today?" * The patient seems very uncomfortable. Due to a lack of answers, the doctor continues to outline the main challenges from the patient's history by asking detailed somatic questions. | The teams that explained why the patient was there but did not spend time clarifying goals or expectations received medium scores (n=11). | The teams that spent time clarifying the reasons for the patient's attendance, what it entailed to work interprofessionally, how they would attempt to solve problems, and who formed goals received high scores (n=3). E.g., Case #6 PS: You are called to attend this meeting because... We are an interprofessional team, meaning that we are going to attempt to apply our distinctive expertise in a collaborative manner to broaden our perspective of your situation. We are flexible in our approach, but we should spend some time discussing what your expectations are for this meeting to help us focus on how we best can address your complaints. It would be great if you could explain your major concern. Then, we can spend time forming a realistic goal together... MD: If we could magically help you with anything, what area in particular in your life would you want help to change? |

| Characteristic | Description | Low | Medium | High |
|---|---|---|---|---|
| Leadership | Whether leadership was autocratic or adaptive | According to the specific case, leadership was determined to be autocratic if there was dominance and lack of adaption in leadership present (n=9). MD: Honestly, I think it is always optimal that the doctor leads these cases instead of alternating. | N/A | High scores were given to the teams that adapted their leadership to each case (n = 13). MD: I think it would be appropriate if the psychologist leads us today, as I believe this case is primarily within this area of expertise... |
| Power Differences | Status differences between professions that allowed some professionals to be better positioned to influence decisions than others | A low score indicated that the team members behaved as equals (n=11). MD: I value my team members' opinions as very critical to fully understanding "the whole picture." I often find it beneficial to lean back and let the other professions take charge—it elicits relevant information. | A medium score indicated the presence of perceived status differences within the team that were also accompanied by a lack of extensive vocal expressions concerning these status differences (n=6). | A high score expressed dominant behavior, emphasizing hierarchical status differences between hospital cultures (n=5). PS: I do not feel like an equal professional in these consultations. The doctor is in "command." I just sit quietly, observing without being able to ask questions, until the doctor has finished his turn asking all the "important questions." Interrupting the doctors is frown upon. MD: I need to ask questions in a specific order to be able to arrive at a correct diagnosis. Interrupting questions from my team members opposes my professional training. |

| Characteristic | Description | Low | Medium | High |
|---|---|---|---|---|
| Swift Trust | A form of the attitudes toward team members that was initially assumed to be positive (Meyerson et al., 2012) | The teams received a low score if they expressed fear of humiliation for asking opposing questions (n=4). PT: It is tough to voice my opinions because I don't feel respected in the team. I'm always on the sideline, and my questions are merely added to the end like supplementary comments. | The teams received a medium score if they asked questions on psychological safety but sometimes hesitated to suggest opposing arguments due to fear of judgement (n=8). PT: It is tough for me to voice my opinions, but of course I do speak up if I truly disagree with something. PS: Sometimes I hesitate to ask some questions because I don't know if it will be received well in the team. | The teams received a high score if they requested feedback, asked clarifying questions, admitted mistakes, and proposed new ideas without fear of negative consequences (n=10). PS: Could you explain to me what this means…? I feel less experienced in this area, and I am grateful that the team has my "back." PT: I believe we are so comfortable around each other that we don't feel that we must prove ourselves. Vi is confident, provides unsolicited feedback, and is open to hearing unorthodox ideas. MD: I feel so uncomfortable and insufficient in this area. PS: I think you are doing fine but being more direct may improve this patient's compliance. If you need help, just let me know. |
| Patient Inclusion | The extent of patient involvement (either active or inactive) | Some teams demonstrated inactive participation (n=6). Patient: I really don't know what would help me… | N/A | Most teams encouraged active participation (n=16). Patient: I just want to be able to attend school and be rid of the stomach aches… Solving my stomach cramps would be my main concern. |
| Problem Focus | Ranked according to whether the patient or team set the focus for the core problem | The teams set the focus if they pointed out their focus using their summaries of the patient's medical history (n=7). | N/A | The patients set the focus of the conversation in instances where they or their guardians framed the problem in their own way (n=15). |

| Characteristic | Description | Low | Medium | High |
|---|---|---|---|---|
| **Problem Orientation** | Ranked according to whether the teams displayed either a settlement or solution orientation | Some teams had a settlement orientation (n=9). MD: I think we should focus on functional gastrointestinal pain; that is the request from the referral notes. | N/A | Many teams spent time redefining the problem and were thus solution oriented (n=13). MD: What are we seeing here? Are we limiting ourselves by narrowing our focus to myalgic encephalomyelitis (ME)? Maybe we should focus on describing the situation and challenge the main complaint? PT: I am wondering if we have captured the "overall picture" of the situation—is there anything else that might be relevant for us to know to explore how to approach this today? |
| **Problem Approach** | Categorized according to convergent thinking (pursuit of a single mental or somatic solution) or divergent thinking (exploration of multiple solutions to discover which might work) | Some teams demonstrated convergent thinking (n=10), including instances where the initial conversation started by asking difficult somatic questions to the patient. MD: What are your toilet habits? How many times a day do you have bowel movements? MD: We should probably focus on evaluating whether the patient is constipated. Then we could offer "Movicol," probiotics, and increase fiber in his diet… | N/A | Some teams demonstrated divergent thinking (n=12) by sharing unanticipated ideas and coming up with multiple answers in a flexible manner. PT: Could dyslexia have a profound impact on her social life by manifesting as intestinal pain? I'm also wondering whether there is something else that might be causing the latent and poor motor skills. PS: Let us explore further some different issues… I think it may be relevant to evaluate the patient neuropsychologically… Let us try to approach this differently and come up with some alternative thoughts. |

**Table 5.** Initial Phase Performance

| Case | Initial Phase | | | Overall Initial Phase Performance |
| --- | --- | --- | --- | --- |
| | Cognitive | Relational | Structure | |
| 1 | High | Medium | Medium | Medium |
| 2 | Low | Low | Low | Low |
| 3 | High | Medium | Medium | Medium |
| 4 | Medium | Medium | Medium | Medium |
| 5 | Low | Low | Low | Low |
| 6 | High | High | High | High |
| 7 | High | High | Medium | High |
| 8 | High | Medium | Medium | Medium |
| 9 | High | High | Medium | High |
| 10 | High | Medium | Medium | Medium |
| 11 | Low | Low | Low | Low |
| 12 | Low | Low | Low | Low |
| 13 | High | High | Medium | High |
| 14 | High | High | Medium | High |
| 15 | Medium | Low | Low | Low |
| 16 | High | High | High | High |
| 17 | Low | High | High | Low |
| 18 | Medium | High | Medium | Medium |
| 19 | High | High | High | High |
| 20 | Medium | High | Low | Medium |
| 21 | Medium | Low | Medium | Medium |
| 22 | High | Low | Medium | Medium |

Moving on to the across-case analysis, we were interested in how these initial interaction patterns could be linked to team processes and performance. Thus, we linked the overall pattern of each phase as displayed in Table 7.

## Results

We present our findings in the following sections. First, we highlight important characteristics in the initial phase and describe initial team interaction patterns by elaborating on examples of high-, medium-, and low-quality starters. Second, we show how these initial interaction patterns are related to the processes and outcomes of these teams. Finally, we present a framework that summarizes various initial interaction

patterns into a typology of four archetypes: settlers, cuddlers, mensas, and adventurers.

## *Initial Interaction Patterns*

Our analyses emphasized three overarching crucial elements of initial team interactions, namely their structural (introductions, purpose, and goals), cognitive (problem focus, problem orientation, and problem approach), and relational characteristics (leadership, power differences, swift trust, and patient inclusion). The following quotes highlight why we considered these initial characteristics to be critical in providing a common understanding of how teams can work together effectively:

> **PS:** It has something to do with the complexity when professionals with diverse professions meet on a diffused ground. These are complex cases, and we need a mutual understanding of how to work together as a team straight away. I wish we had clearer indications of how to coordinate and come to an agreement on common procedures. We shouldn't miss the opportunity to sit down and present ourselves as a team. These initial moments are when we set the expectations for the meeting.
>
> **PT:** We need to change how we start conversations with the patients and alter the expectation that we will solve this problem with the provision of a "magic pill." If we spend time clarifying expectations right at the beginning, we will create a mutual understanding that provides us with a common map, right?! We should spend time figuring out what the specific task requires. To prevent a purely somatic focus in consultations, we need to start out more openly. I believe parents would be more willing to accept a more creative solution.
>
> **MD:** I think we should start the conversation by letting the patient explain their main issue and mutually come to an agreement on the focus of this meeting. That way, we set a clearer strategy. Hopefully, it enables us to become more efficient, guiding how we should procced, how we should coordinate, and what to expect from one another.

**Table 6a.** Example of Low-Quality Starter[8]

| Aggregated Score (Initial Phase) | Cognitive | Relational | Structural |
|---|---|---|---|
| **Case 15**<br>**Low quality** | *Mental condition receives scare attention.<br><br>MD: Alright… We should try to find a solution to the nausea. What are your thoughts on this matter, team?<br>PS: What are we really dealing with here? I think we need to look more into what lies beneath these somatic symptoms…<br><br>Guardian: We have tried this "game" of questions many times before. I think we must be more creative. Do other evaluations. Think outside the box. Let me compare it with a car repair shop. We either need to change some parts or approach this in a new, different way.<br><br>PT: My competence was requested when the guardian begged us to think outside the box. That was nice. Finally, we did not merely pursue a somatic angle. I immediately thought that this was something I might contribute to. That is really the essence of what this teamwork should entail– to be able to think in a new way and collaborate across disciplines. | *Autocratic leadership. Very high power differences and low psychological safety. The psychologist and physiotherapist do not actively participate in the conversation, which is run by the doctor. Only before the initial conversation ends are the other team members invited to ask the patient questions.<br><br>PT: It is like I do not exist in this team. I try to share my opinions, but they are ignored. There is really no point in being part of the team. It is so uncomfortable that I do not know if I can take it anymore… This is not a real team. It consists of two people, a "God" and someone who only adds information when necessary. And then there is me, who just sits here starring into the abyss… Although the doctor says he feels safe and trusts us, he has a need to always be the one who fixes and takes care of the patient.<br><br>*Strongly observed insecurity. Rolling of eyes, and a climate of "stepping on thin ice" from the moment they sat down to have a conversation with the patient. | The doctor and the psychologist have chosen to sit on the same side of the table, while the physiotherapist sits on the opposite side besides the patient and guardians. The doctor provides a collective introduction.<br><br>MD: First, what questions do you have for us?<br><br>The guardian answers that they primarily want help for nausea.<br><br>Child: I don't want to live like this anymore…<br><br>The conversation immediately focuses on the somatic symptoms of the patient.<br><br>*The psychologist interrupts after some minutes into the conversation by asking the team to clarify the purpose and goals for the meeting, but their comments are ignored.<br><br>* The physician is constantly being interrupted, as he is "on-call" during the conversation.<br><br>* No division of responsibilities. No clarification of the day. No clarification of the timing of tasks. A lot of loose ends that are not explored. Very efficiently oriented, rather than relationship building… |

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[8] Green = High; Yellow = Medium; Red = Low
* = Field notes

Case #15 (see Table 6a) is an example of a *low-quality starter.* It received low scores on most indicators: The physician introduced all the team members, there was a high degree of disruptions, poor discussion of the purpose and goals, autocratic leadership, extreme power differences, low psychological safety, and a lack of patient inclusion. In addition, the team set the focus and applied a convergent solution-oriented approach. The following quotes illustrate how team members from other low-quality starters talked about the initial phase:

> **PS:** The doctors are very straightforward and initiate the conversation with a strict somatic focus, exploring this area in detail while the rest of us are just sitting there. We became outsiders, observers to the conversation, which felt very uncomfortable. From there on, there was no room for our contributions or perspectives. The physician used a "gun approach" in questioning the patient. The child became a passive participant—feeling a lack of control and needing to retract from the conversation. There was no way we could find a solution from that moment onward.
>
> **MD:** Everything went wrong today. It started out bad from the moment we sat down to discuss what was wrong with the patient. We do not spend time on introductions because to concentrate, I need to be efficient and ask the questions I find relevant straight away…
>
> **PT:** I am struggling to see the relevance or direction of my team members. I have no idea what his intention was in terms of his line of questioning. It made me feel very insecure, and I felt that we lacked a mutual understanding and collective focus before dividing tasks. We ended up wasting time on coordination issues in pursuit of diverse solutions. We are more confused than effective.

**Table 6b.** Example of Medium-Quality Starter[9]

| Aggregated Score (Initial Phase) | Cognitive | Relational | Structural |
|---|---|---|---|
| **Case 22 Medium quality** | Guardian: We have been running around asking for help constantly… We do not know what to do anymore. We have been told there are no programs or treatments for this condition. I mean…. The healthcare system is "full of beer but there is not much beer brewing." It feels like there is a lack of knowledge and the tasks are too abstract and ambiguous.<br><br>PS: Can you pinpoint what kind of help you consider most crucial?<br><br>Guardian: Help for my daughter, of course!<br><br>PS: Yes, but what specifically are you requesting that we should focus on?<br><br>Guardian: Regulatory difficulties. Social challenges, sleep… You know all these things that are going on. She used to be an energetic girl, but now all she does is rest.<br><br>PS: Do you need help to visualize the extent of her head trauma and communication difficulties?<br><br>Guardian: I am wondering if you could run some hormone tests…and sleep tests, etc. We also need help for deviant behavior like shop lifting and tantrums.<br><br>MD: We might decide to conduct tests. Should we pursue an evaluation for "attention deficit diagnostics" here…?<br><br>*The team is unresponsive to the question. There is much to take in. Pure somatic focus.<br><br>PS: In my opinion, we need to discover which difficulties were present before the patient's accident and which arose because of the head injury. Maybe they need help to process the trauma? | *The team seems very uncomfortable when the guardian initiates the meeting in hostile manner. The team responds empathetically to the "attack."<br><br>*The team briefly describes what has been done to provide care so far. Most of the questions are asked by the psychologist. There is limited participation by the physiotherapist in the conversation. A few questions and answers are given by the doctor.<br><br>*The team seems uncertain, stressed, and unsafe in response to the hostile behavior of the guardian.<br><br>*There is scarce back-up behavior from the team members. The conversation is not constructive, and the team mostly spends time defending or excusing previous professionals' management of the patient.<br><br>* The team members included the patient to a limited extent. The guardian did not convey trust in the team and instead conveyed that they were displeased in the lack of empathy for their situation. | *The team is positioned on the same side of the table, facing the patient. They provide individual introductions. The guardian initiates the conversation, looks at the child, and speaks.<br><br>Guardian: Look, there is the "talkologist," that's what we call psychologists because all they do is talk…<br><br>PS: What are your expectations for us today?<br><br>Guardian: We were notified by another hospital, the real experts in this area, that we were going to be taken care of in Bergen. However, they have been living in a bubble because coming to Bergen can be summarized by jumping out of an airplane from a thousand meters above the ground with a backpack full of rocks and empty promises.<br><br>PS: I think we need some time to talk as a team and plan how we will coordinate.<br><br>* The team fails to structure the day in terms of the timing of tasks. The team rushes along without ensuring that they have a common understanding. The physiotherapist seems unsure of how much time she has been giving to consult but seems to "go with the flow." |

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[9] Green = High; Yellow = Medium; Red = Low; * = Field notes

Case #22 illustrates a *medium-quality starter*. This case had some medium scores on the 10 elements, particularly because it featured individual introductions, a low degree of disruptions, patient inclusion, and clear problem definition. However, it also received low scores for its autocratic leadership and convergent approach as well as medium scores for its level of psychological safety, power differences, and discussion of the purpose and goals. The following quotes illustrate other issues with medium-quality initial starters:

> **MD:** We should never have started the conversation by focusing on the patient's hang-up on diets. It derailed us from considering other perspectives and more relevant symptoms. We should definitely have approached this differently right from the beginning.
> Nonetheless, I think the patient and family considered themselves to be important decision-makers in the team, so we did succeed in gaining their confidence and trust, which is very necessary.
> **PS:** We spent our time focusing on the somatic perspective without exploring related issues. From that moment on, it became difficult to gain acceptance for a potential psychological issue causing physical problems. Still, I think the parents felt heard and included.
> **PT:** I think we started out with too narrow of an orientation to the problem. We heard three various alternatives yet chose to explore only one in depth. Maybe we should have started out with a less restrictive focus. It's tough with these cases because they are so complex and there such limited time. […] We started the entire collaboration without even having mentioned how our tasks became altered or how our team dynamic was affected by our diverse perspectives. Our views on how to approach the consultation were completely different. We lacked an understanding of who should lead and how we should coordinate. The consultation became very diffused.

**Table 6c.** Example of High-Quality Starter[10]

| Aggregated Score (Initial Phase) | Cognitive | Relational | Structural |
|---|---|---|---|
| **Case 19**<br>**High quality** | PS: We hope to collaborate by thinking and exploring your problem in new and creative ways that hopefully might improve your life. Let us try to turn the rock around to see if we can find a different angle to your problems today.<br>PS: We do not have ambitions to find the "great solution" that solves every problem instantly… After all, there is no "lucky" pill that will magically turn your life around…<br>MD: However, if this team were able to do some magic, what would you like us to help you with? What in your life would you like to change radically and why?<br>* The patient describes insomnia as the core issue, but the team explores this further, both mentally and somatically. The team members do not wish to "lock down" the problem to find a solution to insomnia. They ask many questions across professional disciplines.<br>PT: Body and mind go together… Therefore, I would like to also explore areas that you maybe have not thought about before in terms of, for example breathing patterns, and I want to play some ball with you… | *The psychologist leads the conversation, which has been adapted to the specific case.<br><br>PS: [Laughing] Hm… I'm new to this team, so, team, can you back me up in case I have forgotten anything?<br><br>The team smiles and listens carefully and engages actively but comfortably, leaned back, in the conversation.<br><br>*The team is empathetic and recognizes the patient's difficulties.<br><br>*The team does not take turns, but the conversation is natural. The psychologist responds to questions from another professional's discipline. A very comfortable conversation, given the uncomfortable issues at hand.<br><br>PS: We must compliment you because it is not easy to talk about these difficult things with so many adults present.<br><br>*The team recognizes and compliments their colleagues.<br><br>*Despite new team membership, the team acts comfortable and safe around each other. Engaging and harmonious team climate. | *All team members are placed at the same side around the table, equally facing the patient and guardians. They provide individual introductions.<br><br>PS: I want to begin by clarifying why you were called to this meeting and how we work differently from your previous consultants. We are experts from three different backgrounds and have no set plan for how we will approach the day—we are flexible and will adjust according to how the situation develops during the day.<br><br>PT: We would like to hear from you [the patient] what your goals are.<br><br>MD: Ok, let us summarize how we should approach this so that we have a common understanding. Let's put it up on the board so that we get an overview.<br><br>PS: This is our thought on how to approach the day. [To the patient and guardians] What are your thoughts? |

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[10] Green = High; Yellow = Medium; Red = Low; * = Field notes

Finally, Case #19 is an example of a *high-quality starter*. This case scored high on most elements because it featured individual introductions, a discussion of the purpose and goals, adaptive leadership, low power differences, high psychological safety, and patient inclusion. Moreover, the patient set the focus of the conversation, whereas the team members defined the problem and engaged in divergent thinking. The following quotations provide further evidence:

> **PS:** Today, we will try to turn all the stones over to see if we can find a different angle. We have three different backgrounds and hope to be able to help make your life better by exploring your issue in a new way. We do not have ambitions to find the "big solution" and have no clear plan on how to do so. Nonetheless, I think we will adapt a little during the day. We encourage you to draw images or write how you feel on the whiteboard. That instantly helps us to understand what is really going on.
>
> **MD:** I think we have been successful in our consultation. We all agreed on what to focus on, which tools to apply, and shared a common view that enabled a nice flow in the coordination. We had a constructive conversation because we all knew from the start what we set out to do.
>
> **PS:** Spending enough time on clarifying expectations right upon meeting the parents and the patient definitely allowed us to work more creatively in close collaboration with the patient.
>
> **PT:** I think the psychologist did a really solid job of making the patient feel comfortable from the moment he stepped into the room. He felt in control, that he actually had a voice in the conversation. That made it much easier to find a common path to explore various angles that we otherwise would not have considered.

As shown above, teams highlight that the initial conversation matter in terms of forming a common understanding in the team.

### *Linking the Initial Interaction Patterns to Team Processes and Outcomes*

Table 7 provides an overview of the initial interaction patterns in relation to the teams' processes and performance outcomes. By exploring the link between low-, medium-, high-quality starters and their respective process and outcome scores, we found a striking pattern, which we elaborate on in the following section.

**Table 7.** Overview of the Across-Case Analysis

| Case | Initial Phase | Process | Outcome |
|------|---------------|---------|---------|
| 1 | Medium | Medium | Medium |
| 2 | Low | Low | Low |
| 3 | Medium | Medium | Medium |
| 4 | Medium | Medium | Low |
| 5 | Low | Low | Low |
| 6 | High | High | High |
| 7 | High | High | High |
| 8 | Medium | Medium | Medium |
| 9 | High | High | High |
| 10 | Medium | Medium | Medium |
| 11 | Low | Low | Low |
| 12 | Low | Low | Low |
| 13 | High | High | High |
| 14 | High | Medium | High |
| 15 | Low | Low | Low |
| 16 | High | High | High |
| 17 | Low | Medium | Medium |
| 18 | Medium | Medium | Medium |
| 19 | High | High | High |
| 20 | Medium | High | Medium |
| 21 | Medium | Medium | Medium |
| 22 | Medium | Low | Medium |

*Low-Quality Starters*

The team *processes* of the low-quality starters (Cases 2, 5, 11, 12, 15, and 17) were mostly ineffective. Generally, the collaboration was considered unsatisfactory, causing the teams to experience a sense of "aloneness." These cases featured low to medium levels of psychological safety and medium to high levels of boundary defense, despite some efforts to conduct joint consultations. Furthermore, actions promoted inequality and disrespect for the diversity in professions, which may have triggered relational conflicts within these cases. The doctors commonly performed leadership roles. In these cases, there were medium levels of team support as well as deficient information sharing, as the team members were reluctant to speak up. The communication was mostly closed, and there may have been disagreement within the teams. In addition, the cases suffered from role

171

confusion and the limited application of cross-disciplinary perspectives.

When mapping this interaction pattern with the *outcomes*, we found that the low-quality starters demonstrated a low success rate. Generally, patient and team satisfaction were low. Combined with limited information sharing among team members, this resulted in inadequate learning. Consequently, these cases resulted in poor performance.

*Medium-Quality Starters*

The team *processes* of the medium-quality starters (Cases 1, 3, 4, 8, 10, 18, 20, 21, and 22) were characterized by flexible coordination, which enabled the team members to occasionally engage in joint consultations. This afforded the team members a medium level interprofessional perspective and reduced their sense of perceived "aloneness." The consultations were mostly led by the physicians, and there were medium levels of psychological safety and power differences. Notably, there were few conflicts, as the team members respected each other and acted professionally, resulting in a medium-level collaboration climate. Communication was mostly open, although the team members sometimes hesitated to speak up. There was some role confusion regarding task responsibilities and coordination arrangements. The decisions were often consensus-driven, with few disagreements among team members.

Regarding the *outcomes,* the medium-quality starters were only partially successful in reaching a solution. Overall, the patients expressed medium levels of satisfaction with the solution and process. Due to the medium level of speaking up and focus on interprofessional perspectives, the team members experienced a medium level of learning and satisfaction with their performance. Consequently, the medium-quality starters led to average performance.

*High-Quality Starters*

The *processes* of the high-quality starters (Cases 6, 7, 9, 13, 14, 16, and 19) were characterized by joint consultations, given that the teams flexed between professional approaches. The teams carefully listened and observed and took turns conducting their examinations in a collective matter, following up on questions as they arose. This is beneficial because it prevents patients from having to tell the same story over again, allowing teams to learn new approaches to elicit relevant information. More importantly, it favors the inclusion of a cross-disciplinary perspective that enables cognitive reorientation. The teams frequently shared personal information and provided constructive feedback, respectfully recognizing their interdependence. The team members showed high levels of back-up behavior, and there were no boundary defenses or conflicts. There was limited role confusion, high levels of information sharing, and a supportive collaboration climate. Therefore, the team processes were characterized by a high degree of information sharing as well as a positive collaboration climate.

Regarding the *outcomes*, the high-quality starters demonstrated high team performance and effectively solved complex problems. The teams derived creative solutions that both the team members and their patients were satisfied with. Owing to their integration of cross-disciplinary perspectives and high knowledge sharing levels, these team members could successfully learn new approaches and methods together. Consequently, these starters were associated with very effective performances.

### *Developing a Typology of Initial Interaction Archetypes*

The findings in the first two sections motivated us to dig deeper into various initial interaction patterns in the 22 cases. During our analysis of the high-, medium-, and low-quality starters, we found that the aggregated relational and cognitive dimensions were

essential in forming high-quality initial interaction patterns. Therefore, we placed the 22 cases into a 2x2 matrix based on whether they received high or low to medium scores in these two dimensions. We further marked the 22 cases in green, yellow, and red based on their outcome scores. Figure 4 displays the results of this analysis.

**Figure 4.** The Cognitive and Relational Dimensions of the Initial Phase
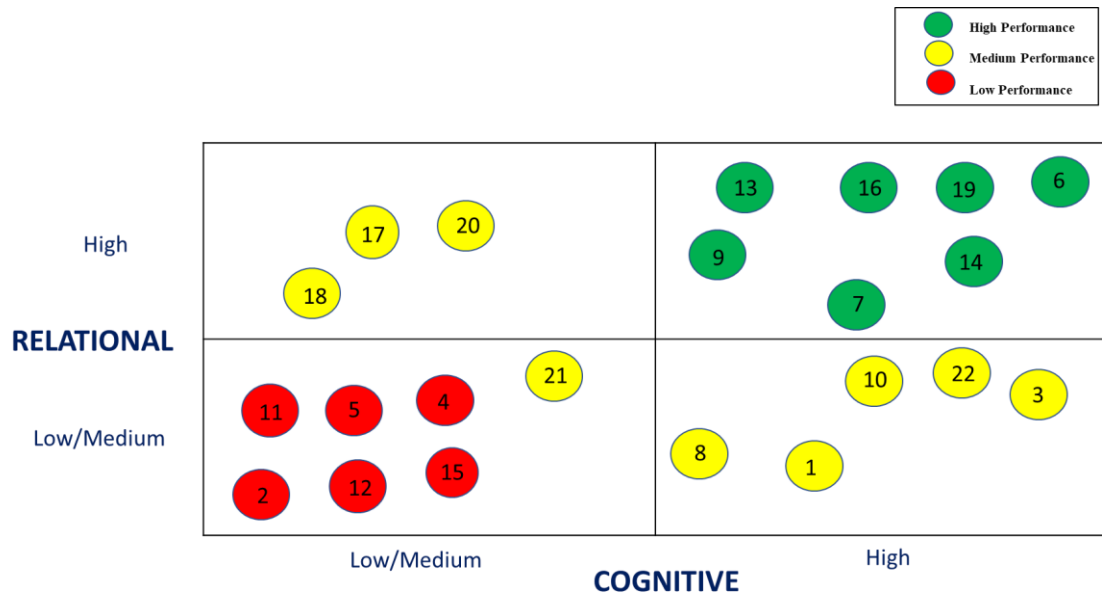


The figure demonstrates that the cases with high cognitive and relational scores had the best results in terms of team performance. For instance, Case #21 had better relational and cognitive results than Case #2, which placed very low in both dimensions. Nonetheless, both of these cases were placed in the lower left cell.

The matrix further allowed us to develop four distinct initial interaction patterns, which we characterized as the following archetypes: Settlers, cuddlers, mensas, and adventurers. Figure 5 provides an overview of the typology. We used the term "settlers" because some individuals tended to jump to conclusions without spending time bonding with others. In the figure, the settlers are represented in the lower left cell. As shown in the upper left cell, "cuddlers" have a strong relational focus with limited problem elaboration. As shown in the lower right cell, "mensas" typically dive into the diagnostics

with a limited emphasis on the relational aspects. Finally, as shown in the upper right cell, "adventurers" have high scores in the relational and cognitive dimensions.

**Figure 5.** A Typology of Initial Interaction Archetypes
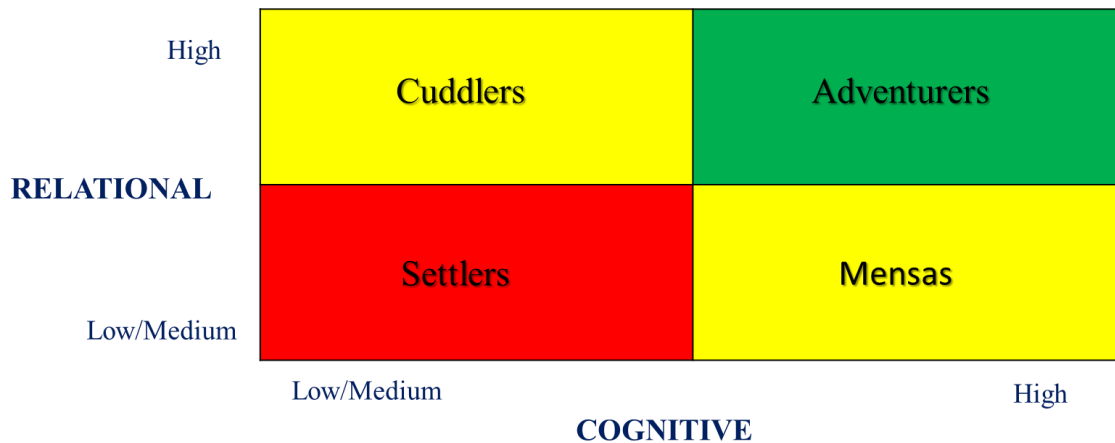


*Settlers*

*Settlers* are characterized by their low to medium scores in both the cognitive and relational dimensions, representing ineffective starters. Settlers vary in the cognitive dimension based on whether the patient or team points out the focus of the problem. Settlers have a settlement orientation, meaning that they spend little time defining the problem. In addition, settlers search to find solutions to predetermined problems and predominantly focus on the information in the patient's medical history. They apply a convergent approach, thus prioritizing somatic symptoms. Likewise, settlers often utilize a "shotgun" approach to obtain patient information, asking detailed and sensitive questions in an abrupt and continuous manner. Patients' body language tends to display crossing of arms, avoidance of eye contact, or blushing in response to being asked detailed and sensitive somatic questions at the onset of the conversation. Informants interpret this behavior of patients as 'closing up, feeling embarrassed, and feeling deprived of control'.

In the relational dimension, settlers are mainly associated with autocratic leadership, as the conversation is primarily led by the physician. Team members are

reluctant to ask questions, and there are high levels of power differences, yielding low levels of psychological safety. While patients may be encouraged to actively participate, settlers often speak more directly to the guardians than the patients themselves. Settlers place limited emphasis on building trustworthy relationships with their patients, as they are more concerned with taskwork efficiency. Teams are often unevenly distributed around the table. Moreover, only the physicians will wear uniforms. These teams do not spend time sharing personal information. Instead, settlers tend to call out a list of observed symptoms from the patient's medical records.

*Mensas*

*Mensas* represent medium starters, and they are categorized by initial interactions that receive high scores in the cognitive dimension but low to medium scores in the relational dimension. Regarding the cognitive dimension, mensas spend time teasing out relevant perspectives and exploring how symptoms interact to appropriately define their patients' problems. Mensas are highly concerned with efficiency in taskwork and use disciplinary framing to define their questions. Their teams are focused on discovery and engage in divergent thinking to allow creativity. Moreover, these teams actively involve the patients and their guardians in highlighting the focus of the problem.

However, mensas are less inclined to focus on the relational aspect of teamwork. They are limited in the sharing of personal information, and they are inconsistent in their use of adaptive or autocratic leadership. Mensas have high to moderate power differences and low to medium levels of psychological safety. Finally, mensas make the effort to include the patients in the conversation.

*Cuddlers*

*Cuddlers* also represent medium starters. In contrast to mensas, cuddlers are categorized

by initial interaction patterns with high scores in the relational dimension but low to medium scores in the cognitive dimension. In the cognitive dimension, they encourage patients to engage in focusing on the problem. However, their teams are settlement oriented, and they spend limited time defining the problem. Moreover, their teams tend to suffer from pre-concluded biases based on the patient's medical history. Cuddlers generally engage in convergent thinking to solve complex problems.

Referring to the relational dimension, cuddlers are relationship oriented and less time sensitive than all the other archetypes. Cuddlers specifically identify the initial phase with a soft approach, in which teams spend considerable time building a trustworthy relationship with the patient and their guardians. Early conversations focus on the social well-being of the patient, and teams frequently compliment the patient on their accomplishments. Cuddlers adopt a distributed adaptive leadership method that is tailored to the needs of the specific case. All team members actively participate in asking questions, and there is a relaxed atmosphere. In addition, cuddlers use an integrative framing approach. There is strong psychological safety and mostly low power differences among team members. Cuddlers make efforts to actively include the patients and their guardians in the conversation. Moreover, they ask few straightforward questions on the somatic complaints of the patients. Rather, they focus on mental health early in the process.

*Adventurers*

*Adventurers* represent the most successful starters. This category is characterized by high scores in the cognitive and relational dimensions of the initial phase. Referring to the cognitive dimension, adventurers have an open and explorative approach to problems. They make extensive efforts to include the patient in formulating the focus of the problem. Likewise, they favor a discovery-oriented perspective to problem solving, and

team members spend a considerable amount of time defining the problem. Adventurers display probing behaviors and ask open questions to obtain the relevant information. In addition, they frame problems in an integrative manner and apply divergent thinking to come up with multiple creative solutions.

Notably, adventurers are also relationship oriented, emphasizing equality in their decision-making and recognizing each other's contributions. Adventurers make strategic alternations to their leadership methods, thus addressing the needs of the specific case. The leaders are attentive and include other team members, which promotes contradicting arguments for deeper investigations of this phenomenon. Furthermore, team members can lean back and allow the patient to take on most of the control of the conversation. Team members respond empathetically and encouragingly to the patient and their guardians. Because adventurers ask and answer questions across professional domains, their professional orientations seem to be indistinguishable. These teams emphasize shared responsibility, the integrative framing of problems, and role flexibility and express no power differences.

## Discussion

**PS:** What we discuss at the very start emphasizes what we will give focus to later in the conversation.

The above statement eloquently summarizes the essence of our study. Evidently, initial team interactions are critical to the processes and outcomes that follow. However, efficient starts do not come naturally to most members of professional teams. Fortunately, the findings of our ethnographic study may prove helpful. Drawing on the literature on team development, team interaction patterns, and complex problem solving, we identified 10 core characteristics that can be used to assess the initial phase of a team. We then compared initial interaction patterns across teams and showed how these patterns

178

systematically related to their processes and outcomes. This resulted in a typology of four initial interaction archetypes, of which the "adventurer" was the superior one. Indeed, teams that failed to address both the cognitive and relational dimensions struggled in their collaborative processes and performed poorly.

### *Theoretical Contributions*

Our study contributes to the literature on teams in several ways. First, this study adds to the literature on team development. Previous studies on team development have focused on how teams pass through a series of phases and how various initial phase activities relate to team processes (Ericken & Dyer, 2004; Gersick, 1988). Yet, what has been missing is a more systematic understanding of the concrete activities that are crucial to forming interaction patterns in the initial phase and how these patterns are connected with team processes and outcomes (Stachowski et al., 2009; Uitdewilligen & Waller, 2018; Zijlstra et al., 2012). Inspired by these aforementioned recent studies of team interaction patterns, we addressed these shortcomings.

As such, our study teases out important characteristics in the initial phase beyond what has previously been offered in the team development literature. The extant research has, for instance, shown that initial strategizing is an important element of the initial phase (e.g., Edmondson, 2003; Edmondson et al., 2007; Gersick & Hackman, 1990; Nembhard & Edmondson, 2006), which relates to the cognitive element found in our study. However, initial strategizing is a generic concept compared to the cognitive characteristics identified in our study, including problem focus, problem orientation, and problem approach. Nonetheless, the literature typically pays less attention to interaction patterns in the initial phase than the current study.

Furthermore, the identified relational dimension has been given scarce attention in the literature (Barth & Funke, 2010; Spering et al., 2005). Our explorative approach

allowed us to tease out various characteristics of the relational dimension, such as power differences, leadership, swift trust, and patient inclusion. Regardless, the relational dimension in the initial phase in our study has some resemblance to relational coordination (Gittel et al., 2000), a concept that presents shared goals, shared knowledge, and mutual respect as important to effective communication. Lastly, in addition to identifying crucial cognitive and relational dimensions, this study determined that structural elements such as introductions, disruptions, and discussions of purposes and goals played roles in the initial phase. Nonetheless, the overall structure seemed to function only as an enabler (Hackman, 2002b; Wageman et al., 2008). Hence, while the structure facilitated each team's ability to take advantage of its members' capabilities and thus accomplish effective problem solving, it is not necessary as a single component to obtain high performance. In fact, teams may perform well without a clear structure.

Second, our study has implications for the literature on team interaction patterns (Lei et al., 2016; Stachowski et al., 2009; Uitdewilligen et al., 2018; Zellmer-Bruhn et al., 2004; Zijlstra et al., 2012). Previous studies were less concerned than our own with the impact of initial interaction patterns on the subsequent team processes and outcomes. Since our study combines the interest of team development theories in the initial phase along with tools from the team interaction pattern literature, we could demonstrate the power of interaction patterns in the initial phase that were previously unaccounted for. Indeed, these patterns form quickly and seem fundamental in defining the destiny of the team.

Our findings are in line with Gersick's (1988) study, underscoring the lasting effects of what happens during the first minute(s) of the initial phase. Each team examined in our study formed their initial interaction patterns within roughly the first 15 minutes of a consultation. Moreover, as we followed these interprofessional teams in a real setting

with high stakes, our study extends the rather artificial nature of the simulated interaction patterns observed in previous studies (e.g., Lei et al., 2016; Uitdewilligen & Waller, 2018). While simulations have important functions for training purposes, they lack the "heat" of real situations. Finally, this study developed an overall typology of effective and non-effective starters and thus adds to the more subtle and detailed patterns commonly described in previous studies. In particular, some studies have described interaction elements, pointing to how interaction patterns are either complex or simple, short or long in duration, home to few or many interactions, and reciprocal or not. We bolster this research area by identifying the specific content and characteristics of interaction patterns.

Third, this study also extends our understanding of complex problem solving (Dörner & Funke, 2017; Funke & Frensch, 2007; Hageman & Kluge, 2017). The literature on complex problem solving is quite limited in regard to team-based problem solving, particularly in the initial phase. Our findings demonstrate that to solve complex problems, teams must address both the cognitive and relational dimensions right from the onset. The complex problem solving literature has emphasized the importance of the cognitive capacity of individual problem solvers (Cristancho et al., 2017; Novick & Bassok, 2005). However, team-based problem solving requires that we go beyond merely improving individual cognitive capacities. Rather, complex problem solving in teams necessitates joint cognitive efforts to support problem focus, orientation, and approach. Furthermore, the complex problem-solving literature has paid limited attention to relational aspects. Importantly, our study concludes that these aspects are equally important to both the cognitive and relational dimensions. In combination, these dimensions offer synergy. While previous studies have addressed the role of structure

(e.g., Eichmann et al., 2019), our findings show that structure was less important in effectively solving complex problems in teams than other considerations.

*Practical Implications*

Professionals tend to operate in uniprofessional silos, and their attempts to share knowledge across professional boundaries are often unsuccessful (Contu, 2014; Ferlie et al., 2005; Hall, 2005; Oborn & Dawson, 2010; Yeo, 2020). This is particularly the case in the very institutionalized healthcare context, within which experts have unique claims to knowledge and are inclined to defend their status, privileged roles, and scopes of practice (Baker et al., 2011; Lingard et al., 2012; Long et al., 2006). In turn, these inclinations restrict and control their professional conduct (Anteby et al., 2016; Lingard et al., 2012; Long et al., 2006), which challenges interprofessional collaboration. As such, our findings might be helpful to counteract these issues by outlining how to approach collective consultations in a favorable manner from the onset. As our study illuminates, teams that incorporate relational and cognitive aspects in the initial phase have good prospects. We described 10 concrete characteristics of the initial phase, all of which provide clear directions on how to improve the likelihood of an effective interaction and productive outcome. At a more general level, these team members may rely on the typology of initial interaction patterns and aspire to become "adventurers." Finally, teams need appropriate training and time to counter "autopilot thinking" and effectively approach complex problems. This is especially crucial in interprofessional teams, given that deep-rooted professional work practices are difficult to alter.

*Limitations and Future Research*

This line of research can be built on in several ways. First, the current study is limited because of how the teams were designed. Our nine professionals participated in eight

different team compositions, and the teams did not conduct the same number of consultations. However, this set-up had distinct benefits. Namely, it enabled us to observe each individual in different team compositions. Moreover, while some teams worked on several cases and others on only a few, we could investigate if the experience of working together on several cases was related to how the individuals started their consultations. Interestingly, we could not identify any clear trends due to some individuals being superior in their work, some team compositions being better than others, and some teams learning and becoming better "starters" over time. Thus, an effective way to start did not seem to come naturally to the teams or team members, and thus may be difficult to learn through experience alone. Although these suggestions are intriguing, we need to conduct further research to confirm them.

Second, the study design may have affected our ability to address causal issues. Although the activities in the initial phase preceded our assessments of the teams' process and performance metrics, we could not reject alternative explanations to the observed behaviors that followed the initial phase. Further research may use experimental designs to examine the suggestions derived from our study. In doing so, future research may build on our findings to develop relevant interventions.

Third, the generalizability of our findings may be of concern. However, knowledge derived from this context may be applicable to teams operating in high-risk and novel contexts with high degrees of diversity and complex problems (e.g., aviation). Moreover, the members of our teams volunteered to engage in interprofessional consultations. Future research may explore the consequences of compulsory participation in interprofessional teamwork. Clearly, the challenges faced by the teams in our study were intense and manifold. Nevertheless, compulsory teamwork might be even more challenging, and our findings may be even more important in these contexts.

## Conclusion

Specialization is a hallmark of modern society, where professionals are trained to become experts in narrow fields that are distinguished from adjacent professions by jurisdictional boundaries. However, because complex problem-solving necessitate bridging of diverse expertise, inexperience in teamwork and taskwork beyond professional scope of practice may complicate interprofessional collaboration. Perhaps it is not surprising that many interprofessional teams start on the wrong foot, and consequently struggle to collaborate and perform effectively. Fortunately, the present study lends some hope by explaining how interprofessional teams can solve the puzzle of complex problems in an effective manner. The key is to approach these problems with an open mind *and* build rapport. As this does not seem to come naturally to team members, hospital management and policy makers must ensure that they are provided with sufficient training, time, resources, and support. We strongly believe that teaching interprofessional teams to invest a few minutes to get it right from the start will pay off greatly in complex problem-solving endeavors.

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**Figure A1.** Data Structure of the Process Phase
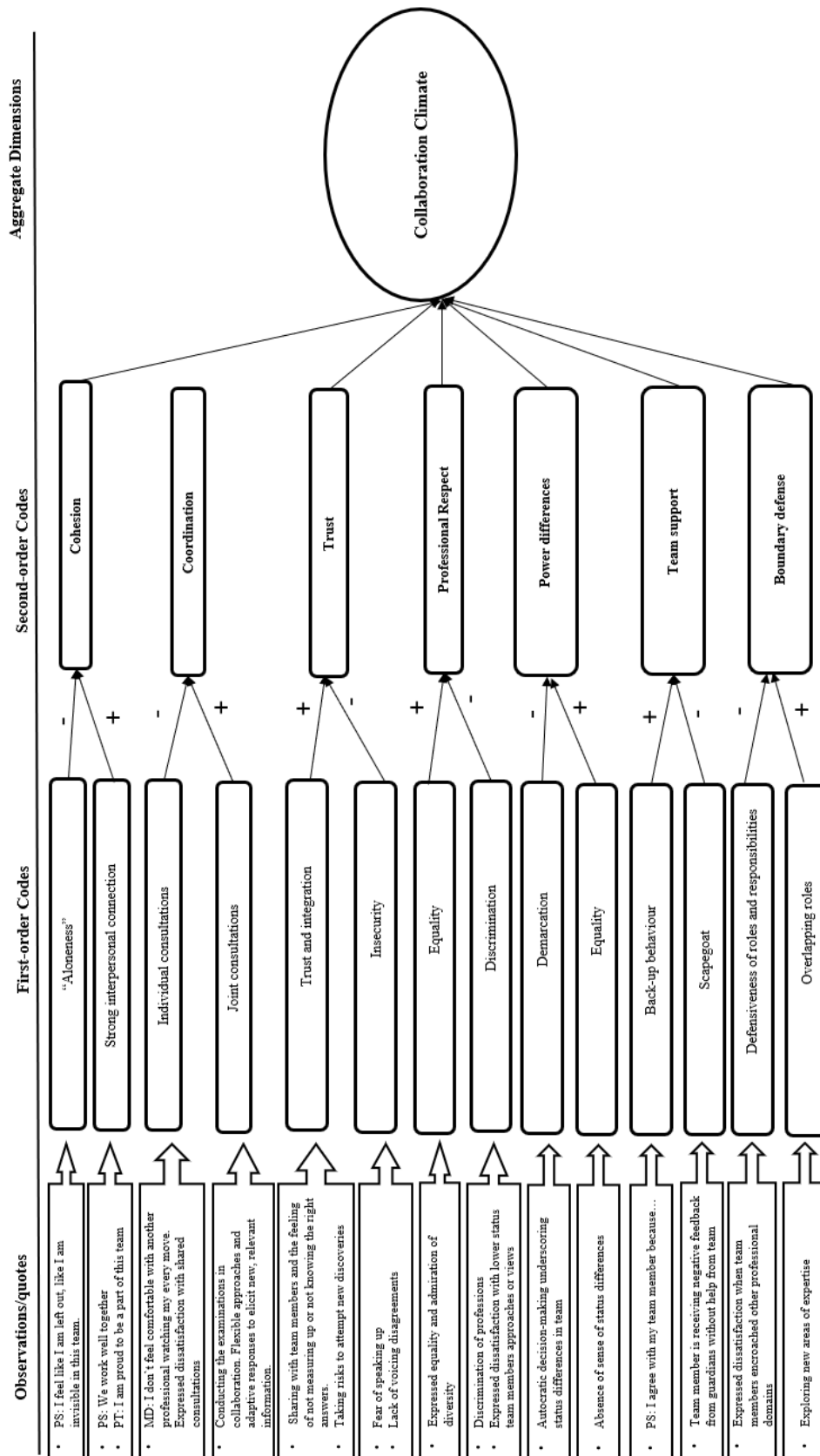
**Figure A2.** Data Structure of the Outcome Phase
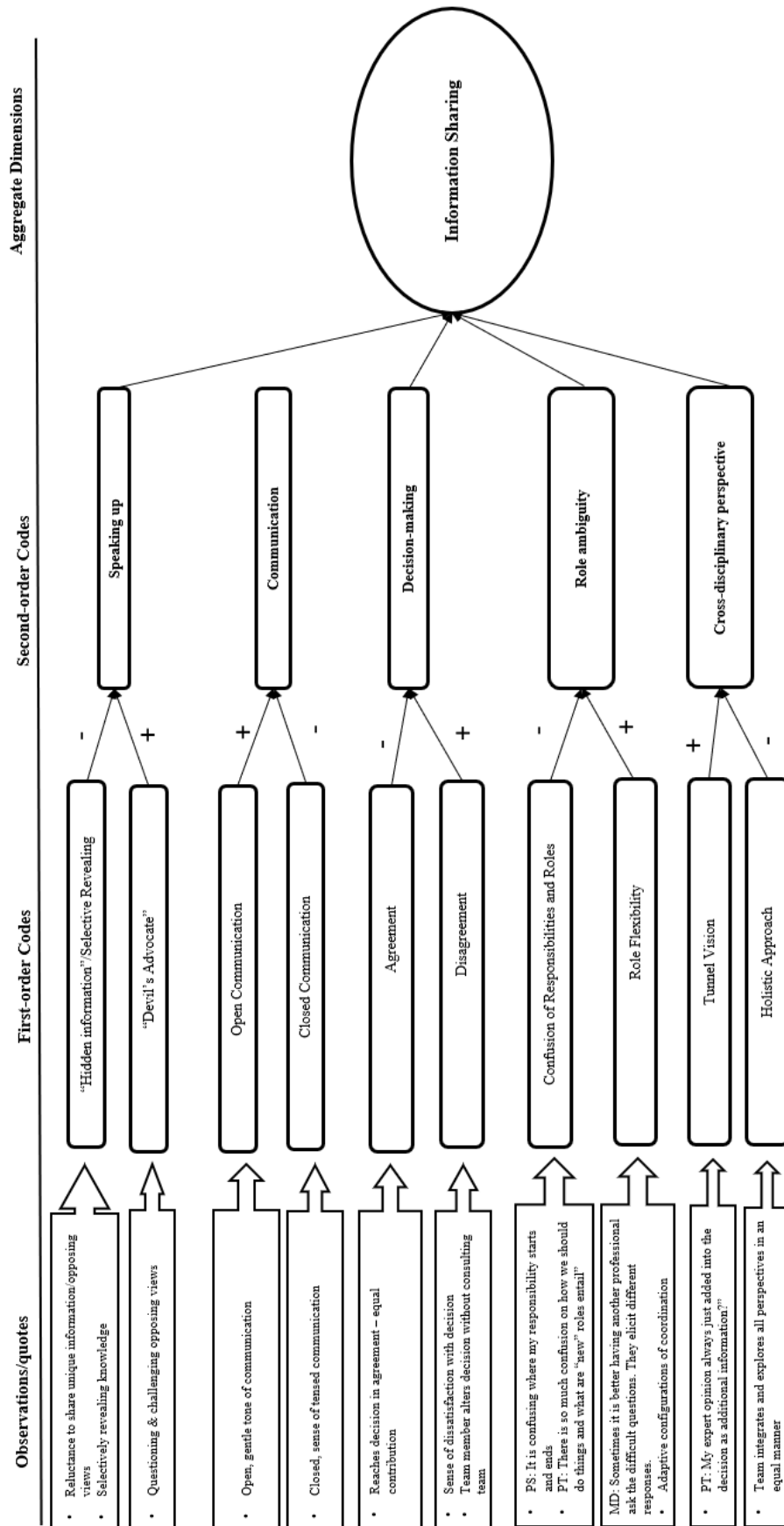
# Appendix B

**Table B1.** Within-Case Analysis of the Initial Phase and Scoring of the 22 Cases

| Case | Intro: Collective | Intro: Individual | Disruptions: High | Disruptions: Low | P&G Discussion: High | P&G Discussion: Middle | P&G Discussion: Low | Leadership: Autocratic | Leadership: Adaptive | Power Diff: High | Power Diff: Middel | Power Diff: Low | Psych Safety: High | Psych Safety: Medium | Psych Safety: Low | Patient Incl: Yes | Patient Incl: No | Problem Focus: Team | Problem Focus: Patient | Problem Orient: Settlement-orientation | Problem Orient: Problem definition | Approach: Convergent psychic | Approach: Convergent somatic | Approach: Divergent | Initial phase |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 |  | x | x |  |  |  | x | x |  | x |  |  |  |  | x |  | x |  | x |  | x |  |  | x | Medium |
| 2 | x |  | x |  |  |  | x | x |  | x |  |  |  |  | x |  | x | x |  | x |  |  | x |  | Low |
| 3 |  | x |  | x |  | x |  | x |  |  | x |  |  | x |  | x |  |  | x |  | x |  |  | x | Medium |
| 4 |  | x |  | x |  | x |  | x |  |  | x |  |  | x |  | x |  |  | x | x | x |  | x |  | Medium |
| 5 | x |  |  | x |  |  | x | x |  | x |  |  |  | x |  |  | x |  | x | x |  |  | x |  | Low |
| 6 |  | x | x |  | x |  |  |  | x |  |  | x | x |  |  | x |  | x |  |  | x |  |  | x | High |
| 7 |  | x |  | x |  | x |  |  | x |  |  | x |  |  | x | x |  |  | x |  | x |  |  | x | High |
| 8 | x |  | x |  |  | x |  | x |  |  | x |  | x |  |  | x |  |  | x |  | x |  | x |  | Medium |
| 9 |  | x |  | x |  | x |  |  | x |  |  | x | x |  |  | x |  |  | x |  | x |  |  | x | High |
| 10 |  | x |  | x |  | x |  |  | x |  |  | x |  | x |  | x |  |  | x |  | x |  |  | x | Medium |
| 11 | x |  |  | x |  |  | x | x |  | x |  |  |  |  | x | x |  | x |  | x |  |  | x |  | Low |
| 12 | x |  |  | x |  |  | x | x |  |  |  | x |  |  | x |  | x |  | x | x |  |  | x |  | Low |
| 13 |  | x |  | x |  | x |  |  | x |  |  | x | x |  |  | x |  |  | x |  | x |  |  | x | High |
| 14 |  |  |  | x |  | x |  |  | x |  |  | x | x |  |  | x |  |  | x |  | x |  |  | x | High |
| 15 |  | x |  | x |  | x |  | x |  | x |  |  |  | x |  | x |  |  | x | x |  |  | x |  | Low |
| 16 |  | x | x |  | x |  |  |  | x |  |  | x | x |  |  | x |  |  | x |  | x |  |  | x | High |
| 17 | x |  |  | x |  |  | x |  | x |  |  | x | x |  |  |  | x |  | x | x |  |  | x |  | Low |
| 18 | x |  | x |  | x |  |  |  | x |  |  | x | x |  |  | x |  | x |  |  |  | x |  |  | Medium |
| 19 |  | x | x |  | x |  |  |  | x |  |  | x | x |  |  | x |  | x |  |  | x |  |  | x | High |
| 20 |  | x |  | x |  | x |  |  | x |  | x |  | x |  |  | x |  | x | x | x |  |  | x |  | Medium |
| 21 |  | x |  | x |  |  | x |  | x |  | x |  |  | x | x | x |  | x | x | x |  |  | x |  | Medium |
| 22 |  | x |  | x |  | x |  |  | x |  |  | x |  |  | x | x |  | x | x |  | x |  |  | x | Medium |

192

**Table B2.** The Scoring of the Process Phase

| Cases | Coordination | | "Aloneness" | | Psychological Safety | | | Leadership | | | Power differences | | | Team Support | | | Respect | | | Conflict | | Boundary Defense | | Speaking Up | | | Communication | | Decision-Making | | Role Confusion | | | "Cross-Disciplinary" Perspective | | | Process |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Joint consult | Individual | Yes | No | High | Medium | Low | Doctor | Psychologist | Physiotherapist | High | Medium | Low | High | Medium | Low | High | Medium | Low | Yes | No | High | Low | High | Medium | Low | Open | Closed | Agree | Disagree | High | Medium | Low | High | Medium | Low | |
| 1 | DIFI | x | x | | | x | | x | | | x | | | x | | x | | | x | | x | x | | x | | x | x | | x | | x | | x | | x | | Medium |
| 2 | | x | x | | x | | x | | | x | | | x | | x | | x | x | | x | | x | | x | | x | | x | x | | x | | | x | | x | Low |
| 3 | | x | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | Medium |
| 4 | DOPI | | x | | x | | x | | x | | x | | | x | | x | | x | | | x | | x | x | | x | | x | | x | | x | | x | | x | Medium |
| 5 | | x | x | | x | | x | | | x | x | | | x | | x | | x | | | | | x | | x | | x | | x | | x | | x | | | x | Low |
| 6 | DIFI | | | x | x | | | x | | | x | | x | | x | x | | | | | x | | x | x | | x | | x | | x | x | | | | | High |
| 7 | DIFI | | | x | x | | | x | | | x | | x | | x | x | | | | | x | | x | x | | x | | x | | x | x | | | | | High |
| 8 | | x | x | | x | | x | | | x | x | | | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | Medium |
| 9 | DAPI | | | x | x | | x | | | x | | | x | | x | x | | | | | x | | x | x | | x | | x | | x | x | | | | | High |
| 10 | D4PIF3 | | x | | x | | x | | | x | | | x | | x | x | | | | | x | | x | x | | x | | x | | x | x | | | | | Medium |
| 11 | D2PI | x | | | x | | x | | | x | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | Low |
| 12 | DIFI | x | x | | x | | x | | | x | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | Low |
| 13 | PIFI | | x | | x | | | x | x | | x | | | x | | x | | x | | | x | | x | x | | x | | x | | x | x | | | | | High |
| 14 | DIFI | x | x | | x | | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | x | | | | | Medium |
| 15 | | x | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | Low |
| 16 | D2PI | | x | | x | | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | High |
| 17 | PIFID2 | | x | | x | | x | | | x | x | | | x | | x | | x | | x | | x | | x | | x | | x | x | | x | | x | | Medium |
| 18 | DIFI | | x | | x | | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | | x | Medium |
| 19 | D2FI,D2P2 | | | x | x | | | x | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | x | | x | | | | | High |
| 20 | D4PIF3 | | | x | x | | | x | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | x | | | | | High |
| 21 | PIF2 | | | x | x | | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | Medium |
| 22 | DIPI | | | x | x | | x | | x | | x | | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | x | | Medium |

**Table B3.** The Scoring of the Outcome Phase

| Cases | Solution | | Patient satisfaction | | | Team satisfaction | | | Learning | | | Outcome |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yes | No | High | Medium | Low | High | Medium | Low | High | Medium | Low | |
| 1 | x | | | x | | x | | | | x | | Medium |
| 2 | x | | | | x | | | x | | | x | Low |
| 3 | x | | x | | | | x | | | x | | Medium |
| 4 | | x | | x | | | x | | | x | | Low |
| 5 | | x | | | x | | | x | | | x | Low |
| 6 | x | | | x | | x | | | x | | | High |
| 7 | x | | x | | | x | | | x | | | High |
| 8 | x | | | x | | | x | | | x | | Medium |
| 9 | x | | | x | | x | | | x | | | High |
| 10 | x | | | x | | | x | | | x | | Medium |
| 11 | | x | | | x | | | x | | | x | Low |
| 12 | | x | | | x | | | x | | | x | Low |
| 13 | x | | | x | | x | | | x | | | High |
| 14 | x | | x | | | x | | | x | | | High |
| 15 | | x | | | x | | | x | | | x | Low |
| 16 | x | | x | | | x | | | x | | | High |
| 17 | x | | | x | | | x | | | | | x | Medium |
| 18 | x | | | x | | | x | | | x | | Medium |
| 19 | x | | x | | | x | | | x | | | High |
| 20 | | x | | x | | | x | | | x | | Medium |
| 21 | | x | | x | | | x | | | x | | Medium |
| 22 | x | | | | x | | x | | | x | | Medium |

194

**Table B4.** Summary of Case Scores

| Case | Process | | | Outcome | | |
|---|---|---|---|---|---|---|
| | Collaboration Climate | Information Sharing | Solution | Patient Satisfaction | Team Satisfaction | Learning |
| 1 | Medium | Medium | Yes | Medium | Medium | Medium |
| 2 | Low | Low | Yes | Low | Low | Low |
| 3 | Medium | Medium | Yes | High | Medium | Medium |
| 4 | Medium | Medium | No | Medium | Medium | Medium |
| 5 | Low | Low | No | Low | Low | Low |
| 6 | High | High | Yes | Medium | High | High |
| 7 | High | High | Yes | High | High | High |
| 8 | High | High | Yes | High | High | High |
| 9 | Medium | High | Yes | Medium | High | High |
| 10 | Medium | High | Yes | Medium | Medium | Medium |
| 11 | Low | Low | No | Low | Low | Low |
| 12 | Low | Low | No | Low | Low | Low |
| 13 | High | High | Yes | Medium | High | High |
| 14 | High | High | Yes | High | High | High |
| 15 | Low | Low | No | Low | Low | Low |
| 16 | High | High | Yes | High | High | High |
| 17 | High | Medium | Yes | Medium | Medium | Low |
| 18 | Medium | Medium | Yes | Medium | Medium | Medium |
| 19 | High | High | Yes | High | High | High |
| 20 | High | Medium | No | Medium | Medium | Medium |
| 21 | Medium | Medium | No | Medium | Medium | Medium |
| 22 | Medium | Medium | Yes | Low | Medium | Medium |

**Table B5.** Overview of the Coding Indicators in the Outcome Phase

| Component in the Outcome Phase | Description | Low | Medium | High |
|---|---|---|---|---|
| Solution | Objective reaching of a solution or not | Did not reach a solution (n=7) | N/A | Reached a solution (n=15) |
| Patient satisfaction | The score from 1–10 provided by the patient or their guardian | The teams received low scores (n=6) when the patients or their guardians provided scores from 1–3 or verbally expressed dissatisfaction. Guardians: We disagree with your decision and will take our son for a second opinion elsewhere. Guardians: It is so frustrating and disappointing to hear your conclusion. There is obviously a somatic underlying cause that you must have ignored… At least failed to detect… This was a total waste of time! | The teams received medium scores (n=10) when the patients or their guardians provided average scores from 4–6, or in cases in which they expressed that they possibly were "one step further" in their search for a solution. Guardians: We will try this out and see if it will provide some new results… | The teams received high scores (n=5) when the patients or their guardians expressed gratitude or provided scores from 7–10. Patient: I would give you a 9 out of 10 on overall performance because I felt that you listened to my needs and finally found some answers. That was unexpected. |
| Team satisfaction | The team's overall satisfaction with its performance was ranged from 1-10. | Low satisfaction (n=5). PT: We came out short in this case… MD: We totally failed! Maybe they should call us "services gone mad" instead. We just kept "rowing without reaching the shore" in this case. | Medium satisfaction (n=9). PS: I do not know if we were able to make a difference in this case. It was so a tough case, but I do not think we could have gotten much further this time. PT: At least we gave the patient some options to try out. | High satisfaction (n=8). MD: It feels so wonderful to finally have solved this puzzle and provided this diagnosis. Now we can treat it. Great teamwork! |
| Team learning | Quotes and actions pertaining to the transfer of knowledge between team members | A low degree of learning (n=6) was observed when there was limited knowledge sharing in the team. PS: I think our own insecurity is preventing us from sharing knowledge and learning new things… | A medium degree of learning (n=8) was characterized by events that featured instances of knowledge sharing without deeply impacting the team's decisions or extending its competence in new areas. PT: Actually, when diagnosed with depression at such a young age, they are entitled to follow up protocols at schools such as… MD: Do you know if antidepressants have been known to have an effect on depression in similar situations? | A high degree of learning (n=8) was indicated by the actions that team members took to explain characteristics or the course of a disease, share new ways and practices to elicit relevant information, share findings from recent research articles, and so on. PS: Well, these are the ways ADD distinguishes itself from depression… PT: Would you share with me how this medication works and how it may affect motor skills, as it is highly relevant to my assessment? MD: Thank you for showing me this new method. It will come in handy in my individual consultations at the clinic too. |

# CHAPTER II

# Escaping the Professional Identity "Straitjacket":
# Towards a Model of Identity Plasticity

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Interprofessional teamwork may threaten professional identities and consequently impede collaboration. This is particularly the case in health care, where resilient professional identities and practices contradict. However, our ethnographic study of interprofessional health care teams showed that over time, professionals reduced identity tensions and escaped their professional identity "straitjacket" to extend their professional identity repertoire. Through real-time observations and interviews, we delineated the process of professional identity reconstruction, which has been insufficiently accounted for in interprofessional teams thus far. Drawing upon literature on identity work and identity play, we explicated five phases of identity reconstruction in our identity plasticity model: shattering, shielding, juggling, fusing, and embodying. This highlights the plastic nature of professional identities, in which advanced phases are fueled by a professional's courage, vulnerability, and flexibility. Our findings contribute to theoretical insights on the plastic nature of identity, extending how professional identities become reconstructed in interprofessional teams. This has valuable implications for practice in highlighting mechanisms that may boost identity reconstruction to augment collaboration.

*Keywords:* identity reconstruction; professional identity; identity play; identity work; plasticity; interprofessional teams; professions; health care

# Introduction

**Medical Doctor (MD3):** Initially, I perceived interprofessional teamwork as an attack on my profession—that teamwork deprived me of my identity as a physician. Now, we no longer adhere to strict professional identities. After all, we have learned to "play different strings" over the course of teamwork.

**Psychologist (PS1):** Teamwork has changed how I view my professional identity. At a point, I felt uncomfortable in my own "skin," but now our roles are intertwined—like paint being mixed. It is hard to articulate in words, but over time, I have become something beyond a psychologist.

**Physiotherapist (PT2):** You realize that your reflection in the mirror has shifted. You acknowledge that who you are and what you do as a professional has changed permanently. Our professional identity was like a straitjacket. Changing meant freeing ourselves from the chains of our professions so that we could move and explore freely what is "out there".

Drawn from our ethnographic study of interprofessional health care teams, these quotes illuminate the journey of how professional identities reconstruct over time. We followed eight interprofessional teams for three years who had been tasked to solve diagnostic "mysteries" in children. While professionals initially perceived their identities to be threatened, over time, they progressively reconstructed and extended their professional identities. This drove our empirical puzzle: *How do professionals free themselves from the straitjacket of their professional identity and advance their identity repertoires?* This question directed our focus toward the process and mechanisms of professional identity reconstruction in the context of interprofessional teams.

As society increasingly relies on interprofessional teams to tackle unpredictable and unscripted environments (Chester & Burley, 2011; Reeves et al., 2017), professionals are expected to navigate numerous and potentially contradictory professional identities simultaneously (Ashforth & Johnson, 2001; Cain et al., 2019). However, bridging formerly distinct professions (Abbott, 1988) in interprofessional teamwork is a complicated and difficult endeavor (Liberati et al., 2016; Mitchell & Boyle, 2015; Reay et al., 2017). Interprofessional teamwork tends to both blur and contest traditional roles

(Brown et al., 2000; Currie et al., 2012; King et al., 2015; Kreiner et al., 2006; Pratt et al., 2006), which distorts professional boundaries (Rodriguez, 2015). Insecurity concerning "which hat to wear" (Ashforth & Johnson, 2001, p. 1; Mollemann & Rink, 2014) poses considerable threats to professionals identities (McNeil et al., 2013; Petriglieri, 2011), as professionals commonly define their professional identities in terms of the roles they enact (Caza & Creary, 2016; Chreim et al., 2007; Neiterman & Bourgeault, 2015; Nelson & Irwin, 2014; Pratt et al., 2006; Siebert & Siebert, 2005; Slay & Smith, 2011). These threats tend to inflict jurisdictional conflicts in interprofessional teams (Mitchell & Boyle, 2015), especially in health care settings, where professional identities are highly institutionalized (Reay et al., 2017).

In this context, professional identities are deeply felt (Ashforth et al., 2008; Mitchell & Boyle, 2015; Mollemann & Rink, 2014) and are considered highly resilient to change (Doolin, 2002; Pouthier et al., 2013; Reay & Hinings, 2005; Scott, 2008). Nonetheless, professional identities are malleable and precarious (Pratt, 2012), and scholars stress the need to mobilize professional identities in interprofessional teams (Best & Williams, 2019). Indeed, this accentuates the salience of professional identity reconstruction (Chreim et al., 2007; Ibarra, 1999; Pouthier et al., 2013; Pratt et al., 2006; Reay et al., 2017).

Extant studies of professional identity predominantly draw on identity work literature (Ibarra & Barbulescu, 2010; Kreiner et al., 2006; Lepisto et al., 2015; Pratt et al., 2006; Svenningsson & Alvesson, 2003). Studies have shown that identities reconstruct when professionals take on an established professional role identity as part of a desired career transition (Chreim et al., 2007; Fachin & Davel, 2015; Ibarra, 1999; Pratt et al., 2006), through work experience (Pratt, 2012), while creating new specialties (Pouthier et al., 2013; Reay et al., 2006), under the influence of institutional logics

(Kyratsis et al., 2017; Reay et al., 2017), during the collective reconstitution of group identities (Langley et al., 2012), in the context of change (Callan et al., 2007), and in response to tension stemming from threats (Petriglieri, 2011) and identity conflicts (Brown & Toyoki, 2013; Cain et al., 2019; Chreim et al., 2007; Croft et al., 2015; Kreiner et al., 2006; Svenningsson & Alvesson, 2003). Best and Williams (2019) recent review on interprofessional teams emphasized that these studies tend to focus on triggers and challenges of professional identity, without identifying solutions to how professional identities are successfully reconstructed. They also predominantly focus on single professions (Hood et al., 2014; Lindeman, 2009). Indeed, scholars call for studies that link literature on professions with literature on identity (Lepisto et al., 2015). In particular, process studies (Bèvort & Suddaby, 2016; Caza & Creary, 2016; Kyratsis et al., 2017; Petriglieri, 2011a; Pratt, 2012; Schultz et al., 2012) that go beyond the concept of identity work (Alvesson & Robertson, 2016).

We answer these calls by exploring professionals' experiences of the process of professional identity reconstruction in interprofessional teams. We develop an identity plasticity model that illustrates the temporal process of how professional identities reconstruct over time through the phases "shattering," "shielding," "juggling," "fusing," and "embodying". Additionally, we highlight the mechanisms involved in this process. We show how professionals can free themselves from the "straitjacket" of their professional identity and advance their identity repertoires over the course of interprofessional teamwork.

We make three contributions toward deriving an in-depth understanding of the process of professional identity reconstruction. First, by combining literature on identity work (Caza & Creary, 2016; Pratt, 2012; Pratt et al., 2006; Svenningsson & Alvesson, 2003) and identity play (Chandwani et al., 2021; Ghaempanah & Khapova, 2020; Ibarra

& Petriglieri, 2010; Stanko et al., 2020), we theorize the identity process that emerges in professionals' responses to interprofessional teamwork. Thus, we answer calls for a more processual and situated understanding of professional identity reconstruction (Alvesson et al., 2008; Alvesson & Robertson, 2016; Ashforth et al., 2008; Bèvort & Suddaby, 2016; Ibarra & Barbulescu, 2010; Schultz et al., 2012). Our identity plasticity model demonstrates the nature of professional identity reconstruction in diverse professions beyond what has been shown in prior research.

Second, our ethnographic study enabled us to tease out the mechanisms explaining how and why the professionals moved through the various reconstruction phases at different intervals. This is important, because an understanding of the mechanism's sheds light on how the pace of identity reconstruction is boosted, thus enabling individuals to overcome identity tension and extend their identity repertoire.

Third, we answered calls by Lepisto et al. (Lepisto et al., 2015) to link literature on professions (Abbott, 1988; Freidson, 2001) to literature on identity. While physicians' identities are considered to be exceptionally resilient (Currie et al., 2012; Reay & Hinings, 2005; Scott, 2008), our study demonstrated that even physicians were able to advance their identity repertoires over the course of interprofessional teamwork. Indeed, we have contributed by illuminating how resilient identities of physicians indeed are malleable.

## Literature Review

### *Professional Identity*

Interest in professional identity is gaining popularity (Caza & Creary, 2016); it comprises several discourses, including those originating from the development of professions (Abbott, 1988), identity work (Ibarra, 1999; Pratt et al., 2006; Snow & Anderson, 1987; Svenningsson & Alvesson, 2003), and identity play (Ibarra & Petriglieri, 2010; Savin-Baden, 2010; Stanko et al., 2020). Professional identity represents the constellation of

values, attributes, beliefs, motives, experiences, and meanings ascribed to individuals—by themselves and others—as they enact a professional role (Ashforth & Schinoff, 2016; Barbour & Lammers, 2015; Ibarra, 1999; Ibarra & Barbulescu, 2010). The concept is considered multifaceted, situated, dynamic, and relational; it fluctuates in centrality and salience (Caza et al., 2018; Fuller et al., 2006; Ibarra & Petriglieri, 2010; Pratt, 2012). This subjective interpretation of professional identity is shaped by past, present, and future perceptions of self (Fuller et al., 2006; Hornsey, 2008; Pratt, 2012). Professional identity serves important functions in terms of value placement (Sullivan, 1999), and it provides a sense of stability and continuity during change (Ashforth, 2001; Ashforth et al., 2008; Hogg & Terry, 2000; Scott, 1997; Waring & Bishop, 2011).

However, professional identities are considered to be malleable (Goodrick & Reay, 2011), and Lepisto (Lepisto et al., 2015) has emphasized three *triggers* that are particularly salient in initiating professional identity reconstruction: deprofessionalization (Haug, 1975), jurisdictional disputes (Abbott, 1988), and value displacement (Sullivan, 1999). This is because professionalization creates normative expectations of role enactment by delineating professionals' scope of practice and values (Anteby et al., 2016; Barbour & Lammers, 2015). Accordingly, professionalization constructs highly resilient professional identities (Scott, 2008) that are deeply felt (Ashforth et al., 2008; Dingwall, 2012; Mollemann & Rink, 2014).

Studies on professional identity in the context of interprofessional teams predominantly highlight impediments to teamwork, such as how blurring roles (Cain et al., 2019; Currie et al., 2012) and disrupting hierarchies lead to jurisdictional disputes that threaten professional identities (Hall, 2005; Mitchell & Boyle, 2015; Pate et al., 2010; Petriglieri, 2011b; Rueschemeyer, 2014) and cause identity conflicts (Brown & Lewis, 2011; Brown & Toyoki, 2013; Cain et al., 2019; Croft et al., 2015). This tends to instigate

the need to defend power and autonomy, thus preserving professional identities (Finn, 2008; Finn et al., 2010; Lingard et al., 2002; Payne, 2006). In response, scholars have suggested some means for reducing professional identity tension in teams. For instance, Pate et al. (2010) suggest that decategorization (i.e., treating professionals as individuals), recategorization (i.e., creating a collective identity focus), or dual identity (i.e., generating super-ordinate objectives that unite professions without compromise) may reduce identity tension. Other studies in this setting have argued the importance of willingness and open-mindedness to question one's own position (Mitchell et al., 2012), trust (MacDonald et al., 2010), and courage (Koerner, 2014) as well as the need for boundary negotiations (Neiterman & Bourgeault, 2015; Payne, 2006), overcoming silo working (Kreindler et al., 2012), reinterpreting institutional logics (Kyratsis et al., 2017; Reay et al., 2017), reframing physicians' work practices (Chreim et al., 2007), and focusing on motivation driven by a concern for patients rather than a desire for power (Lingard et al., 2002).

Still, the mechanisms and processes of how professional identities become mobilized and reconstructed in teams are not fully understood (Best & Williams, 2019; Caza & Creary, 2016). We argue that the literature on identity work and identity play provides direction for understanding the process of professional identity reconstruction in interprofessional teams.

### *Identity Work*

The literature on identity work concerns the complex and dynamic process of "forming, repairing, maintaining, strengthening, or revising" identities (Svenningsson & Alvesson, 2003, p. 1165) to realize a sense of coherence and distinctiveness (Pratt et al., 2006). It is based on the underlying assumption of a desire to display role-appropriate characteristics and conform to social norms (Chreim et al., 2007; Kreiner et al., 2006; Pratt et al., 2006; Roberts et al., 2005; Simpson & Carroll, 2008). Thus, identity work primarily tends to

focus on preserving existing identities via reducing perceived identity mismatches (Pratt et al., 2006).

Studies have provided insight into the various *tactics* (discursive, symbolic, behavioral, and cognitive modes) displayed when individuals cope with and customize existing identities (Albert et al., 2000; Elsbach & Bhattacharya, 2001; Kreiner et al., 2006; Pratt, 2000; Pratt et al., 2006; Svenningsson & Alvesson, 2003). Some examples of these tactics include the use of objects (Elsbach, 2003), experimentation with nascent identities (Ibarra, 1999), rhetorical strategies (Elsbach & Bhattacharya, 2001; Pratt, 2000; Pratt & Rafaeli, 1997; Pratt et al., 2006; Snow & Anderson, 1987), identity regulation (Alvesson, 2010; Alvesson et al., 2008; Alvesson & Robertson, 2006; Alvesson & Willmott, 2002; Langley et al., 2012), narrative identity work (Brown, 2006; Hoyer & Steyaert, 2015; Ibarra & Barbulescu, 2010; Slay & Smith, 2011), ideological reframing and selective comparison (Ashforth & Mael, 1989), balancing personal and social self-definitions (Elsbach, 2003; Kreiner et al., 2006), and engagement in identity play (Ibarra & Petriglieri, 2010; Stanko et al., 2020).

Professionals use these various tactics, either separately or in combination (Lepisto et al., 2015). Studies have shown that such tactics lead to various outcomes, such as "identity deletion" (Pratt, 2000), identity distancing or merging (Kreiner et al., 2006), "enriching, patching, or splinting" identities (Pratt et al., 2006), role model imitation (Ibarra, 1999), displaying signature style (Elsbach, 2009), or rebuilding narratives (Lutgen-Sandvik, 2008; Stanko et al., 2020). While these tactics are vaguely and disparately portrayed in the literature (Caza et al., 2018), they serve three central functions: *adding or enriching* the content of identities, *retaining* to sustain an identity, and *subtracting* to eliminate or revise identities (Ibarra, 1999). The present study focuses on the adding function of the professional identity process, which concerns the process

206

by which individuals form, gain, or enhance identities (Lepisto et al., 2015). Extant studies have focused on the adding function in the context of adopting new logics (Lock, 2010), gaining a leader or follower identity (DeRue & Ashford, 2010), and reconstruction between role transitions (Kreiner et al., 2006). However, few studies describe how professions enhance their professional identities in interprofessional teams (Best & Williams, 2019; Chreim et al., 2007; Reay et al., 2017).

### *The Identity Process*

Identity processes have been described in various ways: phases (Ibarra & Barbulescu, 2010; Kreiner et al., 2006; Pratt et al., 2006; Roccas & Brewer, 2002), responses (Zikic & Richardson, 2016), metaphors (Alvesson, 2010; Savin-Baden, 2010), and patterns (Langley et al., 2012). Studies commonly delineate three phases in the identity process: 1) *separation*, where individuals disassociate from the former self (Ashforth & Johnson, 2001); 2) *transition*, where individuals revise identities to form a "provisional self" (Ibarra, 1999), and 3) *reincorporation*, where individuals internalize new identities as a coherent sense of self (Ibarra & Barbulescu, 2010).

Kreiner et al. (2006) found that priests who negotiated their work demands in response to perceived divergences from initial role expectations employed both *integration* and *separation*. Amongst medical residents, Pratt et al. (2006) demonstrated that mismatches or perceived "work-identity violations" in terms of "what they did" and "who they were" resulted in altered views of their professional identity—from being a "healer" to a "carer". Roccas and Brewer (2002) argued that the process may require both differentiation and integration (*compartmentalizing*) in addition to *reconciliation*. Moreover, in their study of immigrant professionals, Zikic and Richardsen (2016) showed that identity work encompassed four responses: "identity customization," "identity shadowing," "struggle," and "enrichment". Additionally, some scholars argue that

identity phases comprise liminality—a temporary state where uncertainty and identity conflicts emerge, producing a sense of identity incoherence (Howard-Greenville et al., 2011; Ibarra & Obodaru, 2016). Moreover, Alvesson (2010, p. 209) used metaphors to portray seven disparate images that capture individuals' self-identities during the identity process: "self-doubter," "struggler," "surfer," "storyteller," "strategist," "stencil," or "soldier". Similarly, Savin-Baden (2010, p. 35) described how individuals played with virtual avatars by adapting various images: "identity tourists," "changelings," and "shapeshifters". Furthermore, studying merging hospital departments, Langley et al. (2012, p. 145) depicted four patterns ranging from proactive to passive: "mavericks," "fighters," "adapters," and "victims".

Other studies have also applied identity work at the collective level, underscoring the crucial influence of joint action in identity processes (Langley et al., 2013; Petriglieri, 2015; Reay et al., 2017). For example, Lok (2010) suggested that identity-conditioning may influence others' identity construction. Overall, these studies have emphasized the importance of feedback and role-modelling in providing social validation for identity change (Ibarra, 1999; Pratt et al., 2006) or the coactivation of identities in teams or organizations (Caza & Wilson, 2009; Creary et al., 2015; Rothbard & Ramarajan, 2009).

A more recent and scarcely researched area of identity processes concerns how individuals experiment with identity processes in terms of identity play (Ghaempanah & Khapova, 2020; Ibarra & Petriglieri, 2010; Ramarajan, 2014; Savin-Baden, 2010; Stanko et al., 2020). We draw on this literature to better understand the identity process in the interdependent and "conflicting" setting of interprofessional teams.

*Identity Play*

The distinction between identity play and identity work is marked by the exploration of several possible professional selves, rather than complying with a specific identity to

maintain coherence (Ibarra & Barbulescu, 2010; Ibarra & Petriglieri, 2010). Identity play encompasses individual's pursuit of self-discovery through imaginative, introspective, and playful engagements to craft future professional selves (Ibarra & Petriglieri, 2010). Possible selves is defined as "the images individuals have about who they *'might become,' 'wish to become,' or 'fear becoming'* in the future" (Ibarra & Petriglieri, 2010, p. 11; Markus & Nurius, 1986). According to Ibarra (1999), individuals learn to adapt to new roles through experimentation with temporary "provisional selves" to bridge the gap between current self-conceptions and new role requirements. Thus, identity play encompasses revising identities through the observation of role models, experimentation with role play, dreaming, taking on non-traditional roles, or receiving feedback that is on the threshold between reality and imagination (Brown, 2015; Pratt, 2012). Yet identity play requires safe spaces to experiment with possible selves that are devoid of adherence to strict rules or expectations (Hunter et al., 2010; Petriglieri & Petriglieri, 2010; Sandeland, 2010).

Extant studies have suggested that identity play may facilitate recovery in situations of perceived wrecked identities (Sheperd & Williams, 2018); it may also deflect identities (e.g., "teflonic maneuvering") in response to threats (Alvesson & Robertson, 2016). Moreover, studies on identity play conducted in virtual environments have shown that individuals express "ideal selves" rather than "actual selves," thus avoiding exploring negative elements of their identity (Schultze, 2014). However, Stanko et al. (2020) suggested that identity play lies beyond exploring possible future selves, thus adding elements of "improbable self" and "impossible self" to existing views of "provisional self". Howard-Greenville et al. (2011) put forward an adjacent but related term: "liminal spaces" represent areas of possible and ambiguous exploration of self-discovery, which

may help to "release" individuals from role constraints and social expectations that impede creative experimentation (Bucher & Langley, 2016; Furnari, 2014).

While identity-work and play are commonly portrayed as a dichotomy (Fachin & Davel, 2015; Ghaempanah & Khapova, 2020), recent studies argue that these streams are not mutually exclusive (Chandwani et al., 2021; Fachin & Davel, 2015). Nevertheless, there is limited understanding of how these streams of literature interact (Chandwani et al., 2021; Fachin & Davel, 2015; Ghaempanah & Khapova, 2020) and unfold over time. Scholars call out for more empirical process studies that investigate how identity play is triggered and enacted (Ibarra & Barbulescu, 2010; Ibarra & Petriglieri, 2010). Moreover, extant studies have primarily focused on individuals (Brown, 2015) who tailor or strengthen identities within the boundaries of existing professions. Few empirical studies portray the identity process beyond the boundaries of existing professions (Reay et al., 2017) or incorporate how individuals shape new identities through interactions (Alvesson & Robertson, 2016; Fachin & Davel, 2015; Schultz et al., 2012). Yet this is particularly relevant in the interdependent context of interprofessional teamwork. We answer these calls to explore how contextual and interactional elements influence professionals' identity processes by exploring the unfolding process of professional identity reconstruction in the context of interprofessional teams. We use the term "identity reconstruction" to refer to the whole identity process, considering identity construction as the process of forming professional identities during professionalization.

## Methods

This ethnography took place from 2018–2021 at a pediatric clinic at a regional Norwegian hospital. We trailed eight interprofessional teams that were tasked with solving highly complex diagnostic cases in children with comorbidities. Ethnography enables flexible immersion into the field and responsiveness to emergent data (Van Maanen, 2011), and

it is considered suitable for capturing rich context-sensitive data in real time (Cunliffe, 2010).

*Contextual Background*

Norwegian health care is facing the increasing dual challenges of cost and resource duplication when managing multimorbidity (Elgen et al., 2021). Multimorbidity is a condition of co-occurring chronic conditions that is both somatic and mental in nature (Almirall & Fortin, 2013), representing a considerable health care burden (Merode et al., 2018; Salisbury, 2012; Salisbury et al., 2014). As an intervention to deal with issues of multimorbidity at a regional Norwegian Hospital, eight interprofessional teams, each comprising three professionals with complementary expertise, were initiated by hospital management. The teams comprised unique professional configurations (see Table 1 of psychologists (PS), physiotherapists (PT), and pediatric physicians (MD). Collaboration across mental and somatic knowledge domains was a new endeavor at the hospital. We relied on the theoretical purposive sampling of each team member that the hospital had selected among volunteered specialists in multimorbidity management. The disparity in professional disciplines across teams attained heterogeneity and enabled us to contrast across professions.

**Table 1.** Overview of the Sample

| Teams | Medical Doctor | Psychologist | Physiotherapist |
|-------|----------------|--------------|-----------------|
| 1 | $MD_1$ | $PS_1$ | $PT_1$ |
| 2 | $MD_2$ | $PS_1$ | $PT_1$ |
| 3 | $MD_1$ | $PS_1$ | $PT_3$ |
| 4 | $MD_2$ | $PS_1$ | $PT_3$ |
| 5 | $MD_3$ | $PS_1$ | $PT_3$ |
| 6 | $MD_4$ | $PS_1$ | $PT_2$ |
| 7 | $MD_3$ | $PS_2$ | $PT_3$ |
| 8 | $MD_2$ | $PS_2$ | $PT_2$ |

*Note:* $MD_1$ and $MD_4$ = Neurologist, $MD_2$ and $MD_3$ = Gastroenterologist.

The teams worked on extremely varied and complicated cases and were tasked with resolving "diagnostic mysteries" in children for whom prior individual attempts from exemplary experts had failed. The absence of problem resolution and the consequent lack of available treatment posed the risk of being placed on social security welfare (Heggestad et al., 2020; Lygre et al., 2020). Certainly, unresolved cases would incur vast adverse consequences for the children and their families. In the absence of formal routines and process descriptions to guide them, the teams were challenged to self-define their tasks and roles. The teams met on a regular basis (every other week), spending an average of four hours on collective patient consultations. This contrasts with their specialized practices, where each specialized consultation is conducted separately within about 20 minutes. Over the course of three years, the teams participated in three coaching sessions led by an independent consultant.

This specific setting (Table 2) permitted a compelling empirical arena for capturing the process of professionals' identity reconstruction for three reasons. First, health care reflects an extreme (Eisenhardt, 1989) institutionalized context that is prototypical of professions (Abbott, 1988; Reay et al., 2017). Extreme cases enhance the visibility of the constructs under consideration (Pratt et al., 2006) and enables the exploration of complex tensions (Graebner et al., 2012) arising as professionals experience identity conflicts in interprofessional teams (McNeil et al., 2013; Mitchell et al., 2011). Second, the team members comprised diverse professionals from somatic and mental domains, thus enabling the opportunity to address variance between professions. Third, ethnography affords pertinent opportunities to uncover altering conditions that provide deeper insight into the underlying temporal processes (Hammersley & Atkinson, 2019) of professional identity reconstruction in the context of its occurrence. Real-time

observations were suitable for accessing manifestations of identity work and play whilst reducing rationalization biases in retrospective sense-making (DeWalt & DeWalt, 2011).

**Table 2.** Core Characteristics of the Empirical Setting

| Empirical Setting | |
|---|---|
| Novel context | • Unique team combination, first formal attempt to align mental and somatic health services<br>• High uncertainty and ambiguity in approach, lack of references for benchmarking |
| Task complexity | • Ambiguous, ill-structured problems (multi-morbidity), lingering diagnoses, extensive medical records, high number of referrals<br>• Lack of clinical guidelines, limited prior experience in teamwork |
| High stakes of failure | • Potential last resort of problem resolution<br>• Lack of resolution leaves patient socially estranged and likely to end up on early disability due to lack of diagnosis or treatment options |
| High formal pressure | • Time-consuming, cost-intensive care<br>• Patients risk early disability and social isolation if case goes unresolved |
| High team diversity | • Differences in knowledge domain (perspectives and practice), status, centrality, and hierarchical culture |
| High team interdependency | • Require tight coordination and high level of information-sharing |
| Medium stability | • On average, teams meet every two weeks for a full day of interprofessional collaborative care. |
| Limited training and competence in interprofessional collaboration | • An external coach provided occasional feedback during the first year.<br>• Two formal events were organized for collective discussions on progress and norms across teams.<br>• Lack of routines or protocols for interprofessional interaction |

*Data Sources*

The first author collected comprehensive data. Table 3 displays an overview of the data sources, and Figure 1 shows the data collection timeline. We primarily drew on repeating in-depth semi-structured interviews and real-time observations (e.g., observations of patient consultations, team meetings, and team training sessions.) Our observations obtained crucial information pertaining to the professionals' behavior and the teams' interactions. Professional identity reconstruction appeared salient after numerous observations and informal conversations with the teams. Consequently, we assembled semi-structured interview guides based on our observations and the literature on identity

work and play to capture potential changes in these professionals' identity over time. We audio-recorded and transcribed verbatim the semi-structured interviews, which lasted for 120 minutes on average. We documented our observations and informal conversations in a field diary. We used additional data sources (e.g., video, field notes, documentary data) to triangulate and augment our interpretation of events. To prevent data stripping (Pratt et al., 2020), we anonymized our informants to their occupational profession (e.g., $MD_1$).

To increase validity and credibility, the first author conducted peer briefings during feedback sessions held throughout the process (Glaser & Strauss, 1967) to make sure our findings were sufficiently grounded, hence enhancing the credibility and robustness of our data (Lincoln & Guba, 1985). We obtained ethical approval from the Norwegian Centre for Research Data (NSD) and from the Regional Committees for Medical and Health Research Ethics (REK). The hospital coordinator obtained informed consent from each team member as well as their patients' guardians.

**Figure 1.** Timeline of Events
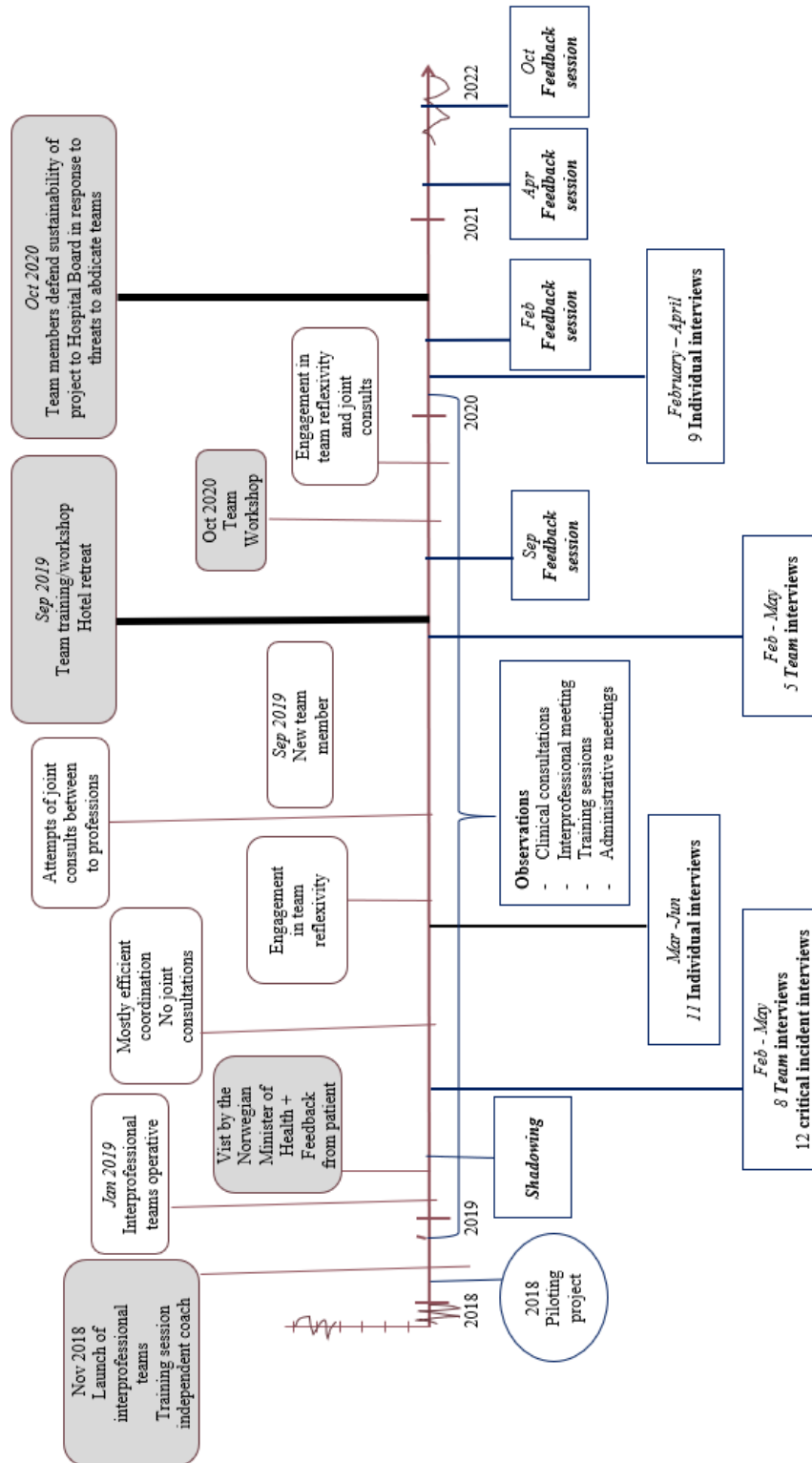


*Note:* The rounded boxes above the timeline highlight important events that occurred during data collection. The square boxes below the timeline display an overview of the data collection process.

**Table 3.** Overview of Data Sources

| Data | Material | Hours | Pages |
|---|---|---|---|
| Observations | 45 team meetings (2–4 h) | 400 | 265 |
| | 22 interprofessional clinical consultations (4–7 h) | | |
| | 12 follow-up consultations (120 min) | | |
| | 4 training sessions (2–4 h per event) | | |
| | 24 interprofessional team lunches (30–60 min) | | |
| | 3 team workshops (6–8 h) | | |
| | 3 team workshops (6–8 h per workshop) | | |
| | Administrative meetings | | |
| Shadowing | Individual team members (~1 h) | 9 | 38 |
| Video Observations | 2 video reports (30 min) | 1 | 11 |
| Formal Interviews | 20 individual interviews (120 min) | 40 | 413 |
| Informal Interviews | 13 team-based interviews (40–60 min) | 24 | 177 |
| | 7 individual interviews (15–30 min) | | |
| | 15 critical incident interviews (30–60 min) | | |
| | 4 collective feedback sessions | | |
| Informal Conversations | Hallway conversations, discussions during formal dinners, informal coffee and lunch conversations, etc. | 64 | 53 |
| Documentary Data | Protocols, communication logs, emails, internal reports, newspaper articles, pilot reports, etc. | - | 170 |
| **Total** | | **538** | **1127** |

*Data Analysis*

We utilized a grounded theory perspective (Charmaz, 2006; Corbin & Strauss, 1990; Glaser & Strauss, 1967) to describe the informants' experiences. We conducted preliminary analyses parallel to data collection, as we had not clearly formulated our current aim at study onset. Thus, rather than relying on preconceived concepts, we coded inductively. We used NVivoPlus12 to facilitate the coding procedure in order to simplify retrieval and enable comparison between coded chunks of data. The focus on professional identity reconstruction became salient during data collection from numerous observations and informal conversation with informants.

Subsequently, we explored triggers of identity reconstruction. For example, we coded "They are robbing me of my identity when they force me to dress [in] civilian [clothing]" as "identity threat," as the statement represented the inability to convert an image consistent with the informant's self-conception (Ibarra, 1999, pp. 780–781). In contrast, we coded "trying out new roles is intriguing" as "identity motivation," which is similar to Vignoles et al. (2002). We also coded emotional indicators to capture whether

216

informants perceived identity reconstruction as threatening (e.g., nervous, anxious) or as an opportunity (e.g., excited, thrilled) to explore whether this differed in individuals over time.

Afterward, we used a narrative inquiry approach (Andrews et al., 2013; Clandinin, 2006, 2016; Clandinin & Connelly, 2000) to explore the informants' identity process. While narrative analysis and grounded theory often serve different purposes (Webb & Mallon, 2007), their combination preserves richness in descriptions and enables the discovery of concepts (Koerner, 2014). Narratives are particularly suitable for capturing the complex, processual, and emergent nature of an identity process (Alvesson & Robertson, 2016; Ashforth & Schinoff, 2016; Caza et al., 2018; Czarniawska, 2011; Hoyer & Steyaert, 2015; Kuhn & Nelson, 2002; Weick et al., 2005). It functions as a sensemaking–sensegiving–sensebreaking framework (Ashforth et al., 2008) to capture how professionals construe meaning during their identity reconstruction (Alvesson et al., 2008; Hoyer & Steyaert, 2015; Ibarra & Petriglieri, 2010; Kuhn & Nelson, 2002; Slay & Smith, 2011; Waring et al., 2015).

We vacillated between induction and abduction to create narratives that captured the informants' self-perceived identity reconstruction, as Hallier and Forbes (2004) recommended. Overall, the narratives were based on elements of identity work similar to Wright et al. (2012) and Ramarajan (2014), but they also accounted for elements of identity play (Ibarra & Petriglieri, 2010). More specifically, the narratives revealed a story encompassing the informants' retrospective descriptions of initial professional identity ("who I was"), their present views of professional identity ("who I am"), moving to imaginative explorations of future self ("Who do I want to become"), and continuing to activities or events related to identity work ("who I am becoming").

In line with Bèvort and Suddaby (2016), we searched within and across our analysis to detect variance in patterns (Miles & Huberman, 1994) using inductive thematic analysis of the narratives (Locke, 2001). This resulted in an abbreviated summary narrative (Table 4.)

We subsequently progressed our analysis into axial coding (Corbin & Strauss, 1990; Locke et al., 2020), where we integrated, systematized, and categorized the content and features of professional identity reconstruction into theoretical concepts. In doing so, we used metaphors to portray the aggregate dimensions of the informants' identity reconstruction phases, similar to Alvesson (2010) and Langley et al. (2013). We identified five progressive stages of professional identity reconstruction: shattering, shielding, juggling, fusing, and embodying.

Next, we compared the sequence of identity reconstruction across individuals, discovering disparity in the tempo of their identity reconstruction. This directed our analyses to explore the mechanisms that provoked movement between identity reconstruction phases. Iterative analyses revealed three inductive mechanisms that triggered movement between phases, which we coded as "courage," "vulnerability, and "flexibility. We defined courage as taking a leap of faith or risk to serve the interest of others, whereas we defined vulnerability as stepping beyond one's comfort zones to openly expose weaknesses and uncertainties. Finally, we defined flexibility as a growth-oriented mindset that embraces new experiences. We contrasted how these mechanisms altered across individual identity reconstruction to position these mechanisms along the sequence of identity phases. Furthermore, we discovered a difference in the degree of conscious identity reconstruction, when we compared across informants and phases of identity reconstruction.

**Table 4.** Overview of Identity Narratives

| Professions | Who I was | Who I am | Whom I wish to become | Who I am becoming |
|---|---|---|---|---|
| PT₂ | "I used to feel safe and confident in my profession". | "It feels like my profession is being erased. I am drowning". | "I am constantly being challenged in terms of who I am. The contours are being erased—blurred. You must be completely 'awake' and conscious of changes. I am trying to juggle different professions". | "I am juggling many different roles. It is not occurring automatically, but I am consciously changing my profession into something more evolved". |
| MD₁ | "I used to view myself as a specialist in neurology". | "I am losing my identity, or maybe not losing it, but definitely changing. There are so many things I currently conduct that have nothing to do with being a doctor". | "Being a doctor is not enough to help these patients. I must broaden my horizon". | "I am becoming a different, but better, version of my profession. I have become more of a team member than a doctor". |
| PT₁ | "I did not used to be so round around the edges professionally". | "My role is being obliterated, but I must face the storm . . . It is professionally ground-breaking to change who I am". | "Changing is no longer a reaction but something I push for". | "I am progressing, advancing in a way . . . My mirror reflection has changed". |
| PS₁ | "There used to be clear borders that defined who I was and what I could do". | "I think it all comes down to my own insecurity of who I am, how much space to take up. It is like I am standing on the outside looking in and not recognizing who I am anymore". | "I joined this team to increase my expertise. To learn new skills that will enable me to better help patients". | "Now I have become something so much more, but it is difficult to articulate in words. What is definite is that I have become something beyond a psychologist". |
| PT₃ | "I was comfortable, knew clearly what I could and could not do". | "I mirror the situation in a sense . . . trying to put on whatever 'hat' that fits". | "I try to push myself—to rise and develop my competence. I chose to be here because I want to expand my professional competence". | "I am changing, becoming less of a physiotherapist and more of something mixed—a crossed profession". |
| MD₂ | "My uniform signals who I am and what I do". | "It feels like I am being forced through a food grinder. I am changing". | "Are you afraid that I will become a 'hobby-psychologist'? [Laughter]". | "I presume my identity, or how I view myself as a doctor, is transforming. Now I fell more like a hybrid". |
| MD₃ | "I am mostly comfortable in my uniform, as it signals that I am a doctor. It also affords me some privileged 'magical' skills". | "It is all coming together in a huge knot . . . I just go along with unpalatable compromises to my profession to avoid conflicts". | "There is a lot of experimentation in these joint consultations. Some doors close and some open. We all want to become better, but change is hard. I joined the team to become a better doctor to solve problems that my profession alone was insufficient in achieving". | "We are what we do . . . and what we do is changing, whether we like it or not". |
| MD₄ | "I am proud of my profession. It gives me direction and purpose. Providing me with a distinct angle or perspective on things". | "It's like a clutch—you must change gears to release yourself". | You must dare to change who you are, in consideration of what the team needs. | I have altered the way I address patients, and how I think about my own profession. I am not either or – one's profession is not black or white. |
| PS₄ | "I am a specialist in psychology, and that is coincident with who I am as a person". | "I keep addressing my role constantly because I can no longer 'walk in the same shoes.'" | "I keep thinking that if I wasn't a psychologist, I would become a physiotherapist . . ". | "I am a specialist in psychology, and that is coincident with who I am as a person". |

Lastly, we developed a model that comprised the process of professionals' identity reconstruction. In line with Gioia (2013), we explored our analyses for contradictions and disagreements to develop consensus through continuous iteration of emergent data, aggregated concepts, and extant literature to ensure that our codes were rigidly grounded (Orton, 1997).

## Results

We present our findings in three main sections. First, we present the five phases of professional identity reconstruction. Second, we highlight the mechanisms that drive identity reconstruction through the discovered phases. Third, we display our identity plasticity model, which summarizes the phases of professional identity reconstruction and the mechanisms involved in this process.

### *Reconstructing Professional Identities*

When asked to describe their professional identity, the professionals consistently addressed major changes in how they enacted their professional roles. Our comparative analyses across teams and professions showed that professional identities were reconstructed progressively through five successive phases: 1) shattering, 2) shielding, 3) juggling, 4) fusing, and 5) embodying. We did not find indications of moving back and forth between phases. For each phase, we begin by summarizing the core elements of the respective phase before outlining excerpts from our informants that illustrate these descriptions in more detail. Table 5 provides an overview of the characteristics in the discovered phases of professional identity reconstruction.

**Table 5.** Overview of the Characteristics in Professional Identity Reconstruction

| Process | Description | Orientation | Change |
|---|---|---|---|
| Shattering | Individuals perceive their professional identity as being compromised because they experience incoherence between enacted roles and social expectations (tension). Individuals respond by behaving obliviously, disclaiming the need for identity reconstruction. Despite inertia, individuals reactively engage in unconscious role adaption within the rigorous limits of their professional identity to avoid isolation and conflicts. | Identity work | Reactive / unconscious |
| Shielding | Individuals attempt to shield their professional identities from change by defending their right to preserve crucial aspects of their identity. Loss-aversion, self-doubt, and discouragement surface as individuals separate or isolate contradicting elements from their professional identity. | Identity work | Reactive / semi-conscious |
| Juggling | Individuals compartmentalize diverse identities by separating and integrating elements from self and from team members' identities: juxtaposing expands identity repertoires and enables context adaptation. | Identity play | Proactive / semi-conscious |
| Fusing | Individuals enact multiple professional identities simultaneously by selectively fusing disparate elements to work flexibly at the intersection of multiple identities during teamwork. | Identity play | Proactive / conscious |
| Embodying | Individuals continuously seek change and capitalize on existing identity repertoire to mold a new, advanced professional identity that is enacted across contexts. | Identity play | Proactive / conscious |

*Identity Shattering*

This reactive phase is characterized by identity tension that surfaces in response to encounters of role-blurring during teamwork. Perceived incoherence between professional expectations and enacted roles triggers conflicting feelings in which the professionals perceive their identity as being compromised. This is manifested in emotional discomfort and distress, in which the individuals described a sense of identity loss. To avoid identity incoherence, the individuals attempted to adhere rigidly to traditional roles and practice. Nonetheless, they unconsciously began reconstructing their identity by gradually accepting alterations in their "scope of practice" to avoid relational conflicts, yet they sensed that doing so suppressed their distressed feelings of perceived identity incoherence.

Our observations revealed that the medical doctors inherently perceived the "need" to sustain and preserve their identity by explicating the need for autonomy, authority in decision-making, and leadership. As the quotes below illustrate, these aspects went initially unchallenged by the psychologists and physiotherapists. Consequently, the team members carried out their consultations in a mainly individual format, sequentially followed by a collective discussion in which the MDs made the final decision.

> **MD2:** Of course, the doctors should be in charge. It is how medicine has been practiced for decades. We cannot change things that we know work—we are who we are, but teamwork may help us coordinate our efforts better.
>
> **PT2:** I believe it is only natural that the doctor assumes leadership.

However, our observations showed that spontaneous role alterations occurred very early on as the teams strove to balance their conflicting practices. Accordingly, role-blurring induced identity tensions that evoked threats to perceptions of professional self.

> **MD1:** We are all trained to play a distinct role where each of us has a unique function. Yet these boundaries that separate us are no longer clear. There is somewhat [an] alteration of roles, which is very confusing.
>
> **PS1:** It is becoming incredibly confusing to understand my role as a psychologist.
>
> **PT2:** There is so much confusion and grey area in terms of who does what. This is uncomfortable because it makes you question your entire profession.

The constant validation of their enacted roles against social norms triggered perceptions of losing "pieces" of their identities, which they described as "split" or "compromised". Consequently, they began to sense that their initial professional identities were no longer "intact," thus highlighting that this phase of identity reconstruction was reactive and unconscious.

> **PS1:** I ask myself where does one profession begin and end? When is a responsibility placed in the hands of another profession and no longer in my control?
>
> **PT3:** Are we meant to attain double roles? How will I know which hat I am wearing at a given time?

> **MD₃:** My profession is changing. It is no longer clear where my discipline starts or ends.

Although the informants suggested that interprofessional teamwork required an alteration of roles, the team members lingered in a state of apathy in their attempts to preserve their initial professional identities. They portrayed themselves as "victims" of professional identity reconstruction, conveying that reconstruction occurred beyond their control.

> **PT₁:** Working interprofessionally is akin to placing a single plank over a large canyon. I just jump, hoping to reach the other side.
>
> **MD₁:** I try to focus on the tasks that lie within my profession and let the others concentrate on their professional roles.
>
> **MD₃:** I just go along with unpalatable compromises to my profession to avoid conflicts.

Nonetheless, the professionals strived to go about their work "as usual" by conducting teamwork as "solo players". Accordingly, they portrayed this phase as uncomfortable, insecure, and isolating. Although none of the professionals seemed pleased with the current mode of practice, there were no open confrontations to change the status quo.

> **PT₂:** I feel like an outsider in the team.
>
> **PT₃:** I am so insecure of my role. Feeling like the third wheel on the cart. I presume I must ignore all these conflicting feelings of what my role will be, but I just don't know how to make "room" for my profession.
>
> **PS₁:** Honestly, it was entirely a solo performance by the doctor. Yet I just went along with it, sticking my head in the sand, feeling like a secretary . . .

*Identity Shielding*

This phase is characterized by loss-aversion, anxiety, and open confrontation as individuals struggle to shield crucial elements of their professional identities. The challenge of traditional roles poses increasingly conscious threats to professionals' identity. Professionals experience self-doubt, anxiousness, and discouragement as they sense they are losing crucial elements of their "self". In attempts to maintain coherence and balance in conflicting identity demands, they may become defensive. The

professionals shield core identity elements, separating contradicting elements that are less crucial from their identity.

Overall, the individuals conveyed that they were facing competing identity demands and identity threats. While the lower-status professions (e.g., physiotherapists) were primarily advancing their authority by enacting leadership roles, the physicians felt pressured to waiver in the roles that traditionally granted their professional identity status and privilege. Consequently, the physicians demonstrated more enduring identity conflict and perceptions of identity loss than their professional counterparts. Even so, the individuals across professions and teams experienced discomforting changes in their professional identities.

> **MD$_3$:** You are taking away my identity as a doctor when you change what I do.
> **MD$_2$:** This is an attack on my profession. I feel like I am being forced through a food grinder.
> **PT$_1$:** My role is being eradicated, but I must face the storm . . .
> **PS$_1$:** It's like I am standing on the outside looking in, not recognizing who I am anymore.

During an observed workshop, the individuals conveyed deep concerns about facing significant identity threats. Especially, the medical doctors regarded their identities as being threatened, as they were asked to relinquish their white coats to dress in civilian clothing during interprofessional consultations. This instigated emotional reactions that conveyed what appeared to be loss-aversion (e.g., despair, anxiousness, and discouragement). Accordingly, they behaved defensively, claiming that interprofessional teamwork deprived them of their professional identities.

> **MD$_2$:** The uniform signals who I am—all that I represent. It is everything I have worked so hard to achieve. My uniform is important to me because it shows that I am a doctor! It also signals some sort of warranty for patients' somatic concerns.
> **MD$_3$:** My uniform signals both who I am as well as my authority in the team. I am comfortable in the white coat, and I like what it signals. I believe I am entitled to all of this as a doctor! I have yielded in some areas, but I will not waiver the right to signal who I am.

The physiotherapists and psychologists argued that dressing in civilian clothing and alternating leadership amongst team members was necessary to reduce perceptions of inequality. While this demand threatened a crucial aspects of the physicians' professional identities, the physiotherapists and psychologists viewed it as a necessary prerequisite for interprofessional collaboration change.

> **PS₁:** Doctors voice tremendous concerns of losing the white coat, informing us that we are depriving them of their identity. Still, I think the uniform is preventing us from being a real team. It separates us and places us in hierarchies in which we become forced to act accordingly. Maybe the uniform is a sense of safety object that the doctors feel they can hide behind . . . We must all change to adapt to this context. It is simply a necessity.
>
> **PT₃:** The white coat of the doctors' signals who the boss is within the team, providing an instant sense of authority that creates distance between us. It's preventing us from being equal and collaborating effectively.
>
> **MD₁:** We are not shaking or threatening the roles of psychologists. Therefore, these changes are not so threatening to them.

Despite professional orientations, the professionals displayed insecurity and defensiveness in reaction to identity changes, as shown below.

> **PS₁:** I no longer feel comfortable in my own skin. We are what we do, and what we do is changing. That makes us feel anxious and scared. It is exhausting and frustrating to change what we do because it makes you question your profession.

*Identity Juggling*

This phase is characterized by increasing consciousness and active engagement in tailoring new professional identities. Here, the individuals activate new facets of their identities through collective experimentation to accommodate the needs of the specific situation. Thus, rather than struggling to reconcile perceived incompatible identities, the individuals preserve aspects of their identity and adopt new elements. They are discovery-oriented, actively testing new self-concepts. Thus, the professionals mix "possible selves" and "possible others" through collective role play, reflecting on multiple versions of "who

they might become" as a professional. Juxtaposing identities permits conscious switching between diverse professional identities—like a "shapeshifter"—which expands their identity repertoire. The ability to juggle between different professional identities requires constant awareness of the situation, contextual understanding, and a safe environment for exploration. Anxiety related to identity loss is defeated during identity experimentation, where individuals engage in conscious identity-crafting.

During a team meeting where the professionals disagreed on treatment options, one of the psychologists abruptly started to imitate the physician's questions and behavior in a respectful manner. The PS unexpectedly adopted certain questions and roles traditionally associated with physicians and adapted them into a personalized style, successfully shedding new light on the case. Impressed by the new perspective, the physician became intrigued and responded by requesting feedback to reinterpret ways of posing questions to patients. This initiated engagement in joint consultations, where the teams collectively participated in unscripted playful exploration of non-traditional roles. Consequently, the individuals adopted and adapted practices from professional counterparts, juggling identities during patient consultations. They often described this as "playing a professional role":

> **MD₁:** We had initially agreed that I should lead the team, but out of the blue, the psychologist just took over this role. At first, I became shocked! My profession usually presumes leadership, and I am not accustomed to other professions just stepping onto my domain. Yet, my profession was suddenly assigned the lowest rank and given the least attention. However, I chose to go along with the psychologist playing the doctor, and it worked out fine. She had her own personal style in her way of portraying a doctor. It is like the path is being formed as we take small steps to change in leap of faith.
>
> **MD₂:** I sometimes act the part of a hobby psychologist to test out new things or ways to approach patients. These ways are quite different from how I normally carry out conversations as a doctor . . .

While testing out new roles during joint consultations did not always lead to successful

"future selves," it created an environment that enabled disconnection from fixed mind-sets and identity loss perceptions. "Trying out new identities" alleviated prior identity tension by expanding professionals' views. Nonetheless, letting go of rigid identities that were no longer relevant in their current form was mainly induced by situations where individuals felt courageous enough to test out new roles.

> **MD$_4$:** I think we just must try out things and see how they work out. It's like a clutch—you must change gears to release yourself.
> **PS$_1$:** We have taken some detours, and there have been some flaws during this experimentation, but we must be open to trying out new things.
> **MD$_4$:** Finding ways to treat each profession with respect involved adapting across all professional levels to meet the needs of the team regardless of our fears of having to change who we are as professionals.
> **PS$_2$:** The ability to adjust perceptions of who we are and what we do as professionals has been important.
> **PT$_3$:** I mirror the situation in a sense . . . trying to put on whatever hat that fits. We had to put aside expectations of how we were supposed to behave and rather dare to explore new paths.

While professional identity reconstruction initially occurred spontaneously and unconsciously, it became progressively more conscious as the individuals exceedingly dared to experiment with non-traditional roles. This consequently reduced tension, inducing laughter, jokes, and sharing personal details and past failures; this had previously been absent because it was considered unprofessional.

As the individuals engaged in identity-juggling, the teams received more praise from patients and collaborated more efficiently. We also observed that guardians were less inclined to refer to the caregivers according to their profession, and occasionally identified the professionals during their conversations incorrectly. For example, one patient referred to the physiotherapist as the psychologist. As the professionals received positive appraisals from patients and their professional counterparts on their identity reconstruction, this further boosted engagement in experimentation.

> **PT₂:** Trying out new roles is intriguing. We step beyond the rules of our professions in these consultations, which seems to please patients.
>
> **PS₁:** Changes to our professions are happening whether we like or not! I can take on the tasks of a physician, although I am not actually a doctor.
>
> **MD₃:** These things have come to live their own lives. I am no longer in control, but I am accepting that it is ok to change because we see that it has an effect in solving these cases.

*Identity Fusing*

This phase is characterized by the simultaneous enactment of multiple professional identities. Here, the individuals engage in exclusion and inclusion criteria utilizing a subset of characteristics from each profession within the team to form a fused professional identity. Hence, they are consciously capitalizing on the acquired expertise of their team members to combine the best possible elements into a new professional identity. Fused identities reduce the sense of loyalty to initial identities, thus permitting freedom and flexibility to work at the intersection of multiple identities without sensing incoherence. The informants described the various ways in which they experienced the fusion of diverse professional identities, portraying their identities as becoming merged with positive elements of professional counterparts. Thus, they recognized this fusion as a positive change that enhanced their performance.

> **PT₃:** Apparently, I have become the glue of the team—the one balancing our roles. I take on the roles of my team members while simultaneously doing the work of a physiotherapist. I'm split in terms of who I am.
>
> **PT₁:** I have become less loyal to my own profession and more loyal to the team.

Our observations revealed that fused professional identities enabled the individuals to elicit patient information in new ways, attaining more crucial insight into the patients' conditions. The MDs adopted exercises traditionally conducted by physiotherapists (e.g., gain information about gastrointestinal discomforts by doing physiotherapy exercises rather than asking patients vulnerable questions). In addition, the MDs implemented tools

inherently used by psychologists, such as writing story-building exercises on the whiteboard to address vulnerable aspects of the patients' issues. This improved their understanding of the social aspect of the patients' conditions. Through observations of professional counterparts along with active experimentation, this practice became consciously fused with the MDs' traditional practices.

> **MD3:** I have started to apply [the] narrative diagnostics [that I] adopted from the psychologist when I elicit patient information. I give the pen to the child so they can write down how they are feeling during the day instead of asking them closed questions like I normally do. It's sort of outside my initial role, but now I use many different methods that I have adopted from other professions.
>
> **PS2:** Learning to merge roles and practices has been important to address the variety of problems we face. I therefore assume both roles of traditionally adhering to the physiotherapist and the doctor.

Across professions and teams, the informants used terms such as "mixed," "hybrid," and "entangled" to describe their experiences in fusing identities. Collective consultations provided a safe arena suspended from social expectations to engage in playful identity-crafting. The informants conveyed this, acknowledging that initial identity enactment inadequately met the complexity of the context and emphasizing that this acknowledgement enabled them to actively pursue conscious identity reconstruction.

> **MD4:** I used to view myself as a specialist in neurology, while now I feel more like a hybrid. I am no longer merely a specialist in a narrow field but take on roles beyond my profession—roles that sometimes have nothing to do with my expertise as a doctor. I take on some new responsibilities and step down from others. It is all entangled.
>
> **MD1:** My role is changing. I am becoming less of a doctor and more something of a mixed profession. Fusing different elements from various professions onto my practice has necessitated letting go of responsibilities and authorities that I felt represented a core part of my identity as a doctor. Yet we had to change who we were to collaborate more effectively in this setting.

*Identity Embodying*

This phase is characterized by converging disparate professional identities into an emergent, evolved identity that is continually re-crafted and enacted across contexts. Hence, the individuals capitalize on the strengths of their acquired identity repertoire while simultaneously pursuing inspiration beyond their identity repertoire for further advancement. Embodying involves continuous self-examination and creativity to acquire a more superior and prestigious identity. This evolved professional identity is experimentally enacted beyond the context of teamwork itself. It affords a sense of privilege and entitlement, particularly as individuals' self-confidence is boosted by praise and affirmation by peers. Individuals reaching identity embodying engage in role-modelling throughout the organization, which has positive ripple effects on the organization.

During their interviews, the informants explained that they were developing a sense of sustained and more highly valued professional identity. Rather than fusing identities from their repertoire of professions in the team, they offered metaphors of continuous conscious identity-crafting beyond teamwork. The informants expressed their engagement in deep reflection, in which they pondered over ways to continuously mold their identity.

> **MD3:** We don't adhere to strict professional roles anymore. After all, we have advanced our profession over the course of teamwork. Personally, I have altered my profession. I see myself as permanently changed—but for the better.
>
> **MD4:** We continue to craft our roles to improve our expertise.
>
> **PT2:** It's like looking in the mirror, acknowledging that who you are and what you do has changed permanently.

The informants considered creative identity-crafting as profound and lasting. The informants explained that the reconstructed identities were sustained beyond teamwork

in their respective separate clinical work. Furthermore, there was consensus across the professions concerning the positive consequences that professional identity reconstruction inferred on collaboration with disparate professions beyond the present setting. The main motivation highlighted concerning professional identity reconstruction was conveyed as embodying new elements to meet the complex needs of the patients.

> **MD$_1$:** Teamwork has changed how I view my own profession. I no longer work in the role or task of my profession. I have evolved into something greater, changed into something more meaningful and enduring of a profession.
>
> **MD$_3$:** I presume my identity or how I view myself as a doctor is continuously transforming. I have come to think of it as developmental process in a positive sense because I am a better doctor now than I used to be.
>
> **PS$_1$:** My identity as a psychologist has changed over the course of teamwork. What is definite is that I have become something beyond a psychologist, but it is hard to articulate in words what this is.

### *Mechanisms that Enable Identity Reconstruction*

Our analyses indicated that the professionals entered phases of professional identity reconstruction at different paces over time, where the speed of transfer between stages depended on distinct enablers that affirmed the individuals' aspirations toward reconstruction. We pinpointed three core mechanisms that boosted identity reconstruction: courage, vulnerability, and flexibility.

Courage comprised individuals disregarding social expectations of role enactment to explore what other professions could offer for their advancement. One informant described this as "escaping the restraints" of the rigid perceptions of professional identities to actively pursue identity reconstruction.

> **PT$_2$:** Our professional identity was like a straitjacket. Changing meant having the courage to free oneself from the chains of our profession so that we could move and freely explore what is "out there". Realizing that other professions have much to offer for our own professional advancement has been crucial to change how we relate to one another and to our patients.

**PS₁:** Changing who we are as professionals relied on the courage to experiment with new roles.

**PS₂:** It takes courage to move beyond our comfort zones.

**MD₄:** I believe daring to enter in and out of stages of development to shape a better version of yourself is the most crucial element in teamwork.

**MD₁:** Changing who we are entailed believing that we are more than our profession [as well as having] the willpower and "gut" to step into the "unknown". Although this was uncomfortable, I do not lose myself just because my role changes—rather, I evolve. It might be scary, but it requires acceptance and courage to change how you see yourself and what you do in the team.

Being vulnerable conveyed respect and facilitated a safe environment to collectively engage in identity play.

**PT₃:** I had to put forward my worries to the team—be open about my weaknesses.

**PS₁:** I believe changing who we were, feeling proud and accomplished in new roles, hinged on being vulnerable and imagining the possibilities beyond my role.

**MD₃:** To put yourself out there, admit when you have done something terrible wrong or feel incompetent, is not something we are used to. Yet doing so sort of alleviated the tension and my belief that as a doctor, I must act a certain way.

Being flexible required constant adaptation to tailor themselves to the patients' situations as well as attentiveness to how the professionals could change their practices to better accommodate their team members' needs.

**MD₁:** We had to be flexible and adapt according to what our team members needed and try to tailor solutions that accommodated the various needs of patients. Sometimes that means that we start off the consultation in the gym, or other times around a table. We must work outside our comfort zone and be prepared to make changes along the way.

**MD₁:** We must hit the gas on the engine [so to speak] trying to elevate an enthusiasm to change what we do and how we do things . . .

**PT₁:** We realized the strangleholds our profession had on us. It was like a strait jacket. This acknowledgement enabled us to avoid spending time on negotiating roles—who should occupy positions of leadership or take up the most space. We have become more flexible.

**MD₁:** I guess if I could pick from the highest shelf how to attain success in interprofessional teamwork, it would be to select individuals that are open to new experiences and flexibility— who have competence in teamwork. Then again, that poses difficulties because you must ask yourself where on earth you will find that sort of expertise in a hospital!?

These mechanisms were crucial to attain the most advanced phase of identity reconstruction: embodying. In this phase, the individuals continuously mold professional identities by searching beyond the competence of the team members to advance their identity repertoire and enact this identity across contexts.

### *The Identity Plasticity Model*

We exhibit the dynamics of professional identity reconstruction in our emergent model, which we call the identity plasticity model (see Figure 2)**.** Overall, our model displays five sequential phases of professional identity reconstruction that occur during interprofessional teamwork: 1) shattering, 2) shielding, 3) juggling, 4) fusing, and 5) embodying. Our process-oriented model accounts for how individuals can move along these five phases of identity reconstruction, explicating progressive advancement in professional identity reconstruction along a continuum. Hence, the model emphasizes the malleability of professional identity.

The early phases (shattering and shielding) involved *identity work*, in which the individuals worked to preserve critical elements of their initial identities to comply with social and jurisdictional expectations. These phases are inherently reactive and unconscious, task-oriented, and less complex than the advanced phases. In contrast, the level of conscious and proactive reconstructing increased progressively through consecutive phases (juggling, fusing, and plasticity) as the individuals started engaging in *identity play*. This was enabled by the mechanisms of courage, vulnerability, and flexibility. Identity play helped nurture a more flexible mindset, which reduced perception of identity loss and boosted pursuit of advancement in identity repertoires. Engagement in identity play is particularly crucial for entering the third phase: juggling. When experimenting with non-traditional roles, the informants' thoughts and feelings were evoked to augment their identity reconstruction. This highlighted that engagement

in identity play might fuel identity reconstruction. The later phases were exceedingly relational compared to the early phases. Here, the social interactions not only amounted to the pressure to reconstruct—instead, we observed that the individuals looked for signals concerning how well they enacted their identities, both from their team members as well as from patients. Positive affirmation was critical to sustain their self-images throughout the reconstruction.

**Figure 2.** The Identity Plasticity Model



Reactive/Unconscious Transition
Task-oriented
Low complexity

Proactive/Conscious Identity Transition
Relation-oriented
High complexity

Courrage, Vulnerability, Flexibility

Shattering

Shielding

Juggling

Fusing

Embodying

$t_0$

$t_n$
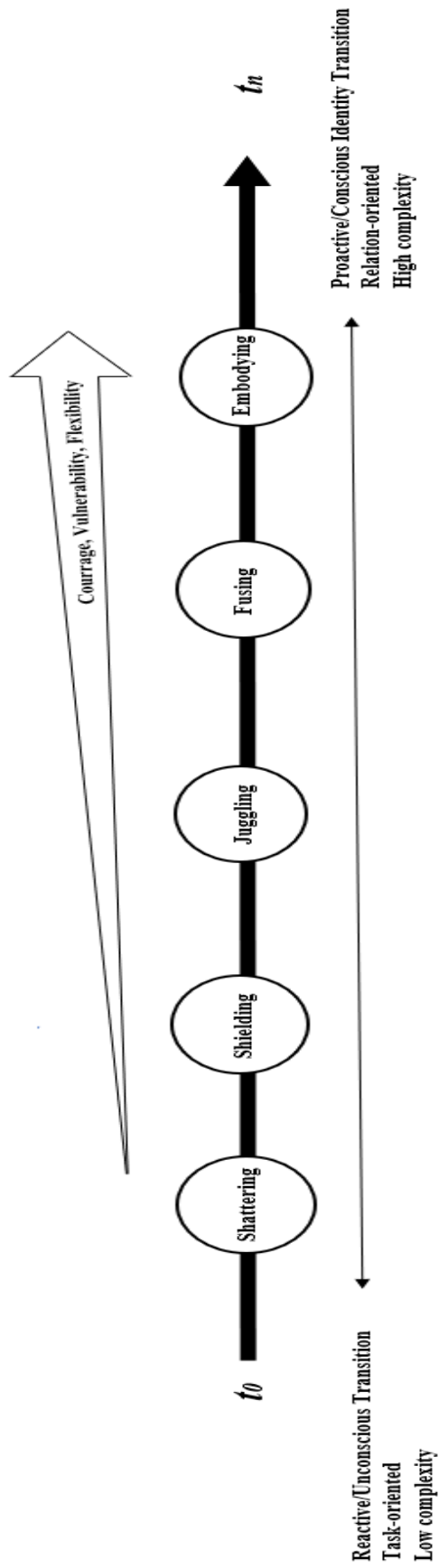
**Discussion**

The goal of this paper was to enrich our understanding of the process of professional identity reconstruction in interprofessional teams. Through our three-year ethnographic study, we learned that these professionals moved progressively through five distinct phases of identity reconstruction: shattering, shielding, juggling, fusing, and embodying. We also identified three mechanisms that facilitated identity reconstruction: courage, vulnerability, and flexibility. Drawing on identity work and play, we developed the identity plasticity model to delineate the process of professional identity reconstruction.

*Theoretical Contributions*

The contributions of our study are threefold. First, we explicate the unfolding process of professional identity reconstruction, which has not been extensively accounted for in prior research (Alvesson & Robertson, 2016; Bèvort & Suddaby, 2016; Ibarra & Barbulescu, 2010). In doing so, we draw on the literature on identity work and identity play. Identity work and play have commonly been viewed as dichotomous (Ghaempanah & Khapova, 2020), but we follow up on suggestions by recent studies (Chandwani et al., 2021; Fachin & Davel, 2015; Ghaempanah & Khapova, 2020) proposing that identity work and play exist along a continuum.

While previous research has generally relied on identity work to understand how professional identities change within the boundaries of their own profession (Reay et al., 2017), combining the literature on identity work with that of identity play, we illustrate how professionals not only reconstruct their identities within their domain but advance their identity repertoire beyond the boundaries of their profession. More specifically, the three phases of juggling, fusing, and embodying illustrate how professionals enact identities outside their professional origin. Through mutual observation and playful experimentation with non-traditional roles, the professionals in our study moved beyond

the shattering and shielding phases, which are characterized by loss-aversion, self-doubt, and discouragement. The identity plasticity model thus demonstrates the plastic nature of professional identities.

The first two phases, shattering and shielding, coincide with prior research on identity work (Alvesson, 2010; Croft et al., 2015; McNeil et al., 2013; Noordregraaf, 2011; Petriglieri, 2011a; Pratt et al., 2006; Schot et al., 2020) in which identities are destabilized. Here, the central element is coming terms with an "ex-role" identity (Ashforth & Johnson, 2001). However, the three latter phases in our model of juggling, fusing, and embodying show slight resemblance with extant studies on identity work. Previous research has predominantly portrayed identity work in more static terms (e.g., typologies, categories, images) (Fachin & Davel, 2015; Pratt et al., 2006; Savin-Baden, 2010; Zikic & Richardson, 2016). For instance, Langley et al. (2012) presented four patterns of identity work: adapters, victims, mavericks and fighters. Alvesson (2010) depicted seven images of self-identities: self-doubter, struggler, surfer, storyteller, strategist, stencil, and soldier.

In contrast, our identity plasticity model shows the comprehensive sequential process of professional identity reconstruction, thus nuancing and extending the literature on identity work and identity play. Indeed, we answer calls for a more temporal perspective of identity reconstruction (Caza & Creary, 2016; Huq et al., 2017; Kyratsis et al., 2017; Petriglieri et al., 2011; Schultz et al., 2012), elucidating that identity reconstruction moves along a continuum from unconscious and reactive to conscious and active. This contrasts with Svenningson and Alvesson's (2003) argument, who suggest that identity reconstruction occurs mainly unconsciously and reactively. Moreover, our model demonstrates that professional identity reconstruction moves from a task focus to a relational focus and from less complex to more complex identity repertoires.

Our second theoretical contribution comprises the three identified mechanisms: courage, vulnerability, and flexibility. This enhances our understanding of how professionals move through the phases of identity reconstruction. These mechanisms reinforced the professionals' engagement with identity play, which was crucial to advancing their identity repertoires. While Koerner (2014) recognized courage as being important to reconciling identity tensions, we show that courage facilitated the informants' progression in their identity reconstruction. Moreover, while vulnerability has been highlighted as valuable for managerial identities (Corlett & Mavin, 2019), our study finds that vulnerability is necessary to engage in identity play. It contributed to establishing a safe environment, resembling the concept of psychological safety that is recognized in team literature as a core condition for team functioning (Edmondson, 1999). Finally, flexibility relied on tailoring approaches according to the specific situation. This might be linked to literature on team adaptation, emphasizing the importance of adapting to dynamic environments (Maynard et al., 2015).

Our third and final contribution concerns linking literature on professions (Abbott, 1988; Freidson, 2001) to literature on identity, answering a call by Lepisto et al. (Lepisto et al., 2015): "Despite history of linking issues of identity work and literature on professions, research as merely begun to tap into this connection". Our ethnographic study explores professional identity reconstruction within the institutionalized context of health care. Importantly, previous research has shown physicians to be particularly resistant to altering their traditional roles (Chreim et al., 2007; Currie et al., 2012; Doolin, 2002; McGivern et al., 2015; Reay & Hinings, 2005; Waring, 2007; Waring & Bishop, 2011), as their roles are tightly linked to their professional identity and are considered to be highly enduring (Reay & Hinings, 2005; Scott, 2008). However, our study contradicts these findings, showing that the physicians' identities were as malleable as their

professional counterparts. Nevertheless, the MDs lingered longer before entering the stages of identity play. Ultimately, the identity repertoires of each professional advanced to the level of identity embodying. As such, our study coincides with prior research suggesting that professionals perceive identity processes differently based on their status and power (Currie et al., 2012; Dovidio et al., 2007). However, our model underscores the temporal aspect of identity reconstruction as well as illuminates how professionals vary in their pace of reconstruction.

### *Practical Implications*

Our study has three important implications for practice. First, the process of professional identity reconstruction is a complex and difficult journey that is psychologically draining. Thus, professionals, managers, and policymakers need to become aware of the tensions that arise from collaborating with professional counterparts. Professional identities are deeply felt and enduring, and as our model shows, it takes considerable time and effort to reconstruct identities. Therefore, facilitating these reconstructions requires managerial and organizational support as well as sufficient resources. Moreover, professional identities are preserved through symbolic artifacts (e.g., uniforms), hierarchies, and institutionalized practices. Accordingly, creating awareness of how deeply rooted historical practices and artefacts constrain professionals' identity-reconstruction and collaboration is crucial.

Second, by becoming aware of the salience of professional identities and how identities are shaped through rigid education and socialization processes, we emphasize the need to focus on professional identity reconstruction in formal education systems and training. More specifically, professionals need more interprofessional training in teamwork, which can be accomplished through various activities such as role play, disciplinary work rotations, and shadowing professional counterparts. Tapping into the

mechanisms mentioned in our model, we encourage training in becoming vulnerable, flexible, and courageous in work practices (e.g., improvisation classes). We advise the use of trained facilitators to create psychologically safe environments for this to occur.

Third, after receiving training, we encourage interprofessional teams to engage in on-the-job training in their specific teams (in particular, shedding rigid traditional consultation practices and engaging in teamwork in new facilities whilst alternating leadership and responsibilities). For example, we found that alternating leadership among professionals as well as conducting consultations in a gym setting was effective in disrupting the status quo, thus enabling more conscious identity reconstruction. In addition, focusing on creating a team identity might mitigate the tensions of individual professional identities. Fortunately, our findings revealed that upon reaching the juggling phase, the professionals become increasingly conscious of the positive effects of identity reconstruction, which had a ripple effect on further advancement in identity reconstruction.

### *Limitations and Future Research*

Our ethnographic study is not void of limitations. First, our qualitative study does not allow for generalizing our findings. Future research could explore alternate contexts and cases to probe the broader transferability of our findings. We encourage scholars to empirically replicate this study to determine how these findings apply to weaker organizational contexts in which hierarchies are less evident and professional boundaries are more fluid. We also find value in increasing the sample size of interprofessional teams to better illustrate contrasts between teams. In addition, empirical work exploring differences in identity reconstruction across cultures may provide valuable information.

Second, an important note pertains to the voluntary participation of our interprofessional teams. This may potentially have speeded professional identity

reconstruction, as opposed to cases where there is involuntary participation. That said, we argue that the reconstruction process will be similar, yet they will require even more effort and time to reach the identity embodying phase. Future research could explore this in other settings.

Third, we cannot assess the causal chain in our model, as other factors may drive reconstruction. Future research could apply other designs to rule out alternative mechanisms of identity reconstruction (e.g., experiments and longitudinal survey designs). Nevertheless, we argue that observing identity reconstruction in real time yields favorable opportunities to capture informants' experiences of identity reconstruction.

## Conclusion

While health care is increasingly relying on interprofessional teams (Mitchell et al., 2011), friction and hostility stemming from identity tensions commonly undermine teamwork (Atwal & Caldwell, 2005; Caldwell & Atwal, 2003). Our ethnographic study provides critical insight into the processual nature of professional identity reconstruction in interprofessional teams. Our identity plasticity model portrays progressive phases in which professional identity repertoires become more advanced. We show how professionals' identities can extend their identity repertoires when they are courageous, vulnerable, and flexible. Indeed, we show that resilient professions can in fact escape their professional identity "straitjackets".

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# CHAPTER III

# From Boundary Guard to Rebel: Strategies for Transforming Knowing in Practice Across Boundaries in Interprofessional Teams

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Interprofessional teams merit the hope of bridging fragmented knowing in practice to solve highly complex problems. However, hierarchies, jurisdictional claims, and contradictory approaches between disparate professionals tend to give rise to conflicts and competitive boundary work. This is particularly the case in healthcare. This paper sheds light on how to unlock the potential of transforming knowing in practice across boundaries in interprofessional teams by exploring the influence of boundary strategies on the unfolding process of knowledge transformation. Our ethnographic study trailed eight interprofessional healthcare teams, who were tasked with resolving complex chronic cases in children. The paper contributes to the literature by offering a dynamic model that illuminates the progressive stages of knowledge transformation. It also describes different strategies that can be used and how the dynamic interplay between them reduces, stabilizes, or boosts levels of knowledge transformation. The paper suggests distinct boundary-crossing activities that offer advice to policy makers and practitioners aiming to reduce organizational silos and tribalism among professional disciplines.

*Keywords:* knowledge transformation; boundary work; knowledge boundaries; boundary strategies; boundary permeability; boundary-crossing activities; interprofessional teams; jurisdictions

# Introduction

**Psychologist (PS₁):** This teamwork experience has been a time consuming, energy intensive, and anxiety provoking activity that differs completely from prior experiences. We have learned that collaborating and sharing diverse perspectives is harder than we anticipated, and hinges on overcoming substantial hurdles of professional competitiveness along the way.

**Medical Doctor (MD₁):** We had to figure out how to "dive" into unknown territory without being attacked by "sharks" and dare to step outside the boundaries of our professions. I have realized that the medical profession, unexpectedly, is often not the most important. You realize along the way that you know less than you thought, and others know more than you expected. I must admit that this acknowledgement was a tough "nut to crack". I have learned to downplay my profession and embrace new knowledge. My views on professional boundaries have become expanded during teamwork, and the way I relate to my colleague's professions are different from before we started this journey. We are ending the diagnostic spiral of most patients because we achieve more as a team than as single professions, and that is epic.

Organizations increasingly rely on interprofessional teams comprising professionals with complementary expertise to enable innovation and translation of practices in circumstances of task complexity (Ben-Menahem et al., 2016; Bruns, 2013; Liberati et al., 2016; Oborn & Dawson, 2010; Tortoriello et al., 2012; Wageman et al., 2012). While interprofessional collaboration can transform disparate knowledge to achieve innovation (Dougherty, 2004; Dougherty & Takacs, 2004; Levina & Vaast, 2005; Orlikowski, 2002), translating knowledge across professional boundaries often represents a formidable challenge (Bucher et al., 2016; Garman et al., 2006; Langley et al., 2019; Lifshitz-Assaf, 2018; Lindberg et al., 2017; Mørk et al., 2010; Yeo, 2020). This is illustrated with the two citations from my informants at the beginning of this introduction, which illuminate the challenging journey of transforming knowledge and practice over time in interprofessional teams.

These challenges are particularly evident in interprofessional healthcare teams (Bucher & Langley, 2016; Liberati et al., 2016; Powell & Davies, 2012; Swan et al., 2007). Disciplinary knowledge is "sticky" (Cook & Brown, 1999), and knowing in

practice is socially, culturally, and historically situated (Nicolini et al., 2003; Nicolini, 2012; Orlikowski, 2002). Different epistemic cultures shape "how we know what we know" (Knorr Cetina, 1999) and, thus, orient fragmented perceptions and focus, which has important implications on interprofessional knowledge production and collaboration (Mørk et al., 2008). Furthermore, jurisdictional demarcations in professional knowledge claims, hierarchies, and autonomous and contradicting practices (Abbot, 1988; Brown et al., 2010; Lamont & Molnàr, 2002; Zietsma & Lawrence, 2010) separate and diverge actions (Michel, 2014). This gives rise to knowledge boundaries that challenge the transfer, translation, and transformation of knowledge (Carlile, 2002, 2004).

The ability of teams to cross knowledge boundaries to modify and convert uniquely and valued knowledge from disparate disciplines into novel expanded forms is known as the process of knowledge transformation (Bechky, 2003; Carlile & Rebentisch, 2003). The literature provides some insight into activities that facilitate the crossing of knowledge boundaries. The traverse view argues for the need to externalize professional differences and dependencies through dialogues (Okhuysen & Bechky, 2009; Tsoukas, 2009). In contrast, the transcendence view focuses on practices that minimize differences and distinctions between specialties in the absence of dialogue (Ewenstein & Whyte, 2009; Kellogg et al., 2006; Schmickl & Kieser, 2008).

Yet, crossing knowledge boundaries is difficult (Oborn & Dawson, 2010; Rodriguez, 2015; Waring et al., 2015), as higher-status professionals tend to defend existing boundaries, while lower-status professionals strive to dissolve them (Battilana, 2011; Currie et al., 2012; Langley et al., 2019; Lefsrud & Meyer, 2012). Although recent studies have demonstrated the potential for temporal blurring of boundaries in teams (Apesoa-Varano, 2013; Bucher et al., 2016; Pouthier, 2017), status hierarchies and silo-mentalities tend to persevere (Finn, 2008; Finn et al., 2010; Nugus et al., 2010; Rodriguez,

2015; Vad Baunsgaard & Clegg, 2013). This has critical consequences, as the inability to cross knowledge boundaries poses the risk of compromising care integration (Ferlie et al., 2005; Mackintosh & Sanall, 2010; Waring et al., 2015).

Thus, achieving knowledge transformation requires endless boundary work (Bruns, 2013; Kellogg, 2014). Boundary work is defined as "purposeful individual and collective effort to influence the social, symbolic, material or temporal boundaries, demarcations and distinctions affecting groups, occupations and organizations" (Langley et al., 2019, p. 704). Langley et al. (2019) identified three types of boundary work: competitive, collaborative, and configurational. Depending on what kind of boundary work is performed, professionals may use different strategies to "establish, sustain, extend, dissolve, blur, or change practice domains" (Comeau-Vallée & Langley, 2020; Gieryn, 1983; Helfen, 2015; Lamont & Molnàr, 2002).

While boundaries are considered fairly resilient (Addicott et al., 2007; Ferlie et al., 2005), they have a dual nature—as junctures or barriers of collaboration (Kislov, 2014; Lamont & Molnàr, 2002; Quick & Feldman, 2014). Accordingly, boundaries tend to be represented along a continuum from impermeable to permeable (Kislov, 2018). While strategies of engagement (Faraj & Yan, 2009) facilitate penetration of "sticky" boundaries (Dibble & Gibson, 2018; Drach-Zahavy, 2011; Edmondson & Harvey, 2018; Oborn & Dawson, 2010), those of disengagement (e.g., "boundary buffering" or "reinforcement") prohibit penetration. Nonetheless, these boundary strategies tend to compete (Choi, 2002), where the tension between simultaneously present boundary strategies might result in selective permeability (Kislov, 2018). This indicates that the interplay between boundary strategies shapes the process of knowledge transformation.

While adjacent literature on groups and communities of practice has provided insight into the process of knowledge transformation (Allin et al., 2011; Feghali & El-

Den, 2008; Gabbay et al., 2020; Tippmann et al., 2017), more empirical studies need to be conducted on how knowledge transformation occurs in practice in interprofessional settings (Barrett & Oborn, 2010; Bucher et al., 2016; Mørk et al., 2008; Pyrko et al., 2017). Based on what I have described, four key insights warrant further investigation into the unfolding process of knowledge transformation and the role boundary strategies play in this process. First, the temporal perspective and microlevel mechanisms of how knowledge transformation occurs in interprofessional teams are not sufficiently understood (Dopson & Fitzgerald, 2005; Tagliaventi & Mattarelli, 2013; Tasselli, 2015; Tsoukas & Mylonopoulos, 2004). Second, studies tend to presume the stability of boundaries, ignoring the malleable conception of boundary permeability (Dibble & Gibson, 2018; Faraj & Yan, 2009; Kislov, 2018). Third, scholars call for a deeper understanding of practices that require a combination of a traverse and a transcendence view of knowledge transformation (Majchrzak et al., 2012). Fourth, the dynamic interplay between various boundary strategies over time is often overlooked (Dey & Ganesh, 2017; Kislov, 2014).

Therefore, to address these gaps, I ask the following research questions: *How does the process of transforming disciplinary knowing in practice unfold in interprofessional teams? What boundary strategies do professionals employ in the process of knowledge transformation, and what is the interplay between these boundary strategies?* In this ethnographic study, I trailed eight healthcare teams composed of diverse professionals who have not previously shared common practices but were tasked to collectively solve complex chronic problems in children. This study makes the following three contributions to the literature. First, I identify stages in the process of knowledge transformation in interprofessional teams that are currently insufficiently understood (Tagliaventi & Mattarelli, 2013; Tasselli, 2015). Second, I answer calls by Majchrzak et

al. (2012) by illuminating two central boundary-crossing activities that accelerate progression in the process of knowledge transformation. Third, I highlight three distinct boundary strategies and show variations in the use of boundary strategies that have been insufficiently unaccounted for previously (Langley et al., 2019; Liberati et al., 2016; Powell et al., 2018). Fourth, I illuminate the dynamic interplay between boundary strategies to elucidate how they shape the process of knowledge transformation. Hence, I extend the literature on boundary work on the dynamic and malleable conception of boundaries (Kislov, 2014; Kislov et al., 2021; Reay et al., 2017). Ultimately, I develop a model that depicts the process of knowledge transformation and the influence of boundary strategies in interprofessional teams.

## Literature Review

### *Knowledge Boundaries in Interprofessional Teams*

Interprofessional teams face the daunting task of navigating multiple knowledge domains to derive innovative solutions and make effective decisions. While traditional approaches consider knowledge as something people possess (epistemology of possession), practice-based approaches consider knowledge as something people do (epistemology of practice) (Cook & Brown, 1999). Hence, knowing is socially, culturally, and historically situated and an integral part of practice (Nicolini et al., 2003; Orlikowski, 2002; Yanow, 2004).

Bridging disparate knowing in practice is challenging in interprofessional teams, as boundaries may impede collaboration (Bucher et al., 2016; Helfen, 2015; Langley et al., 2019; Liberati et al., 2016; Majchrzak et al., 2012; Mitchell & Boyle, 2015; Rodriquez, 2015). Boundaries represent demarcations, which are rooted in deep values, roles, and responsibilities (Abbott, 1988; Lamont & Molnàr, 2002). They distinguish professionals' realms of competence and legitimate activity (Liberati et al., 2016), thereby guiding what and how to do it and what not to do. These boundaries are cultivated through

extensive training and governed by regulations and well-established traditions (Abbott, 1988; Freidson, 2001a); consequently, each discipline resides in semi-autonomous intellectual domains (Aram, 2004; Lindberg et al., 2017; Mørk et al., 2012; Powell & Davies, 2012; Zietsma & Lawrence, 2010).

Knowledge boundaries may lead to misunderstandings and create conflicts hampering collaboration (Cronin & Wingart, 2007). Knowledge boundaries represent inconsistencies in representation (syntactic), interpretations (semantic), and dissimilar interests (pragmatic) (Carlile, 2004). In particular, syntactic knowledge boundaries impede information processing, as teams lack consensus regarding what information each professional holds (e.g., differences in terminology, means of expressions, or practice) (Kotlarsky et al., 2015). Semantic knowledge boundaries emerge as diverse professionals struggle to transcend different interpretations based on taken-for-granted assumptions (Carlile, 2002; Dougherty, 1992; Edmondson & Nembhard, 2009). Additionally, interprofessional teams face pragmatic knowledge boundaries, as professionals are guided by divergent interests, goals, constraints, and performance indicators (Kotlarsky et al., 2015). Ultimately, knowledge boundaries might hinder knowledge production, knowledge sharing, and innovation (Ferlie et al., 2005; Mørk et al., 2008, 2012)—a challenge known as the knowledge boundary problem (Garman et al., 2006).

Previous studies have highlighted considerable difficulties in surmounting knowledge boundaries in interprofessional teams (Dahlin et al., 2005; Edmondson & Harvey, 2016; Gardner et al., 2012; Majchrzak et al., 2012; Oborn & Dawson, 2010; Okhuysen & Eisenhardt, 2002; Srikanth et al., 2016). Teams primarily tend to focus on information shared by everyone (Faraj & Xiao, 2006; Majchrzak et al., 2012). This is referred to as the "common knowledge effect" (Gigone & Hastie, 1993; Stasser et al., 1989; Stasser & Titus, 1985; Stewart & Stasser, 1995). Without focused effort to ensure

the sharing of unique knowledge, team diversity will unlikely contribute to bridging disparate knowing in practice (Edmondson & Harvey, 2018). Teams may, therefore, overlook critical information and execute biased choices.

Crossing pragmatic knowledge boundaries in interprofessional teams can be particularly challenging. Hierarchies and status differences tend to negatively impact psychological safety, thereby constraining lower-status professionals from speaking up (Edmondson, 2003, 2012; Nembhard & Edmondson, 2006). According to Bendersky and Hays (2012), the extent of knowledge sharing hinges on team members' intentions—whether to impress others in pursuit of gaining status or relinquishing information to reduce the status of others. Similarly, studies have indicated how lack of trust among team members (Andrews & Delahaye, 2000; Mayer et al., 1995), low psychological safety (Edmondson, 1999), threats to professional identity (McNeil et al., 2013; Mitchell et al., 2011), or in-group/out-group identification (Lewin & Reeves, 2011; Voci, 2006) can inhibit crossing of pragmatic knowledge boundaries.

### *Boundary Strategies and Boundary Work in Interprofessional Teams*

Interprofessional collaboration is a demanding endeavor of ceaseless collective boundary work (Anteby et al., 2016; Apesoa-Varano, 2013; Bucher et al., 2016; Chreim et al., 2013; Finn, 2008; Huq et al., 2017; Suddaby & Greenwood, 2005). Studies tend to presume the stability of boundaries, ignoring the malleable conception of boundary permeability (Dibble & Gibson, 2018; Kislov, 2018). However, the composite and dynamic nature of boundaries (Finn et al., 2010; Hernes, 2004) is flexible and permeable (Ashforth et al., 2000; Kislov, 2018). Boundary permeability is represented along a continuum from weak to strong (Edmondson & Harvey, 2018; Kreiner et al., 2006; Lifshitz-Assaf, 2018). It is defined as the inclination of boundaries that regulate the flow of information, resources, and interactions (Dibble & Gibson, 2018), as well as the degree of reciprocal influence

of disciplinary domains within a team (Kislov, 2018; Kreiner et al., 2006). Weaker boundaries imply permeability, in which teams engage in reciprocal knowledge sharing, cocreation, and adaptation (Drach-Zahavy & Somech, 2010; Kislov, 2018; Workman, 2005). Hence, weaker boundaries may provide junctures that enable connections to facilitate collaboration (Quick & Feldman, 2014).

Boundary work concerns creating, maintaining, blurring, or shifting boundaries among groups, professions, or organizations (Comeau-Vallée & Langley, 2020; Gieryn, 1983; Helfen, 2015; Lamont & Molnàr, 2002; Langley et al., 2019). Various strategies of engagement or disengagement lead to alterations in boundary permeability (Apesoa-Varano, 2013; Kislov, 2018). Langley et al. (2019) conceptualized boundary strategies in three categories: collaborative (engagement), competitive (disengagement), and configurational. The landscape is manipulated to afford either differentiation or integration to orient the domains of both competition and collaboration during configurational boundary strategies. This suggests that boundary strategies have the potential to blur and bridge.

For example, Comeau-Vallèe and Langley (2020) illuminated the interplay between inter-and intraprofessional boundary work, demonstrating that teams can display collaborative or competitive boundary strategies simultaneously. Furthermore, Carmel (2006) found that physicians and nurses work toward obscuring professional boundaries while simultaneously reinforcing organizational boundaries that enable collaboration. Extant studies have shown that negotiating the meaning and relationship between separate practices (traverse view) might blur boundaries (Drach-Zahavy, 2011; Kaplan et al., 2017; Kellogg et al., 2006; Levina & Vaast, 2005; Roberts & Beamish, 2017; Rodriquez, 2015; Van Meerkerk & Edelenbos, 2018). In contrast, other studies have shown that

engagement in joint practice without explicit confrontation of differences might blur boundaries (transcendence view) (Bruns, 2013; Kaplan et al., 2017).

In the context of interprofessional teams, higher-status professionals tend to work to maintain the status quo (Battilana, 2011; Bucher et al., 2016; Finn et al., 2010; Lockett et al., 2014) and use various disengagement strategies as part of competitive boundary work, hence assuming rectitude of current boundaries and expecting lower-status professionals to assimilate (Benoit et al., 2010; Germov, 2005; McNeil et al., 2013; Nugus et al., 2010; Saks, 2009; Suddaby & Greenwood, 2005). Dominant professionals tend to highlight the limitations of adjacent professionals to disqualify legitimization or membership (Allen, 2000; Gieryn, 1983; Norris, 2001; Nugus et al., 2010; Sanders & Harrison, 2008).

A wide range of rhetorical devices and practices are used to lay claim to specific realms of knowledge and assert their jurisdiction over tasks (Burri, 2008; Ferlie et al., 2005; Hazgui & Gendron, 2015; Martin et al., 2009; Norris, 2001; Powell & Davies, 2012; Salhani & Coulter, 2009; Sanders & Harrison, 2008; Santos & Eisenhardt, 2005). Bucher (2016) showed how naturalistic language can be used to normalize status positions that discursively distinguish professions as more "holistic" or advanced in uncodifiable ways. Similarly, Dingwall (2012) showed that dominant professions use "atrocity stories" to cast negative light on lower-status professions. Furthermore, demarcation might involve enforcing team norms or emphasizing identities (Burri, 2008; Drach-Zahavy & Somech, 2010; Garud et al., 2014; Murray, 2010), or resist addition of new tasks (Nancarrow & Borthwick, 2005).

However, disengagement strategies induce boundary disputes and contestation, where lower-status professions might retaliate (Bucher et al., 2016; Lefsrud & Meyer, 2012; Martin et al., 2009). Lower-status professionals might attempt to extend their

domains to attain legitimacy and power (Battilana, 2011; Finn et al., 2010; Lockett et al., 2014). To accentuate capabilities, lower-status professionals have been shown to form coalitions or employ rational argumentation to enhance their position (Bucher et al., 2016; Huising, 2014; Sanders & Harrison, 2008; Suddaby & Greenwood, 2005). For instance, Bucher et al. (2016) showed that middle-status professionals are more aggressive contesters of power than lower-status professionals. While disengagement strategies might induce conflicts that require "boundary repair work" (Arndt & Bigelow, 2005; Garud et al., 2014), accounts of power reversals between different status professionals have been indicated (Helfen, 2015; Huising, 2014). Yet, we have a relatively limited understanding of how power shifts amongst professionals over time.

### *Knowledge Transformation in Interprofessional Teams*

Knowledge transformation is considered a cyclical process that begins with individual representation of existing knowledge, assessment, and negotiation, preceding to alteration or expansions into new combinations of knowledge that is finally validated (Carlile & Rebentisch, 2003). Recent studies have suggested that knowledge transformation occurs in two steps: conceptualization and engagement (Gabbay et al., 2020). Conceptualization implies a "knowledge fit," in which information is adopted and applied locally, while engagement concerns the modification and refinement of knowledge. Bechcky (2003) argued that knowledge transformation is accomplished when actors understand how knowledge from another occupation fits with and enriches practice within the context of their collective work.

Studies have highlighted the importance of engaging in dialogue during the early stages of knowledge transformation. Addressing professional differences in interprofessional collaboration helps teams identify knowledge gaps by increasing familiarity with each other's knowledge bases (Faraj & Xiao, 2006; Tsoukas, 2009).

Adjacent literature has also suggested various mechanisms for addressing professional differences, (e.g., perspective making and perspective taking) (Boland & Tenkasi, 1995), probing (Hargadon & Bechky, 2006), talking about problems and mistakes (Cameli & Gittel, 2009), collective sensemaking (Gabbay & May, 2004), and boundary spanning (Kaplan et al., 2017).

However, dialogues that address differences can simultaneously risk creating tension and interpersonal conflicts, which might impair knowledge sharing (Edmondson & Nembhard, 2009). Therefore, working alongside one another without addressing differences can be effective in overcoming knowledge boundaries (Majchrzak et al., 2012). Joint practices can enable teams to capitalize on collective knowledge bases to sustain learning momentum and attain agility (Bruns, 2013; Schmickl & Kieser, 2008). This can induce creative spillover effects into third contexts (Bresman, 2013; Tagliaventi & Mattarelli, 2013; Vashdi et al., 2013), where knowledge is translated across teams, organizational units, and communities of practice (Cartel et al., 2019; Contu, 2014; Pyrko et al., 2017).

While recent studies have provided valuable insight into the process of knowledge transformation (Gabbay et al., 2020; Tippmann et al., 2017), relatively few empirical studies have focused on the microlevel process of how knowledge transformation occurs across interprofessional boundaries (Edmondson & Harvey, 2018; Gabbay et al., 2020) and few have addressed the temporal aspect of how it unfolds over time (Pyrko et al., 2017; Tagliaventi & Mattarelli, 2013; Yeo, 2020). Temporal alterations in boundary strategies accentuate the salience of intersectionality in boundary work (Langley et al., 2019). Yet, the interplay between opposing strategies of engagement (Quick & Feldman, 2014) and disengagement (Lynn, 2005) commonly tends to be overlooked (Dey & Ganesh, 2017; Hernes, 2004; Kislov, 2018). While previous studies offer valuable

insight, we need a deeper understanding of the "ripple effects" among boundary strategies (Arndt & Bigelow, 2005; Langley et al., 2019; Persson, 2010). We also need a deeper understanding of the implications that boundary strategies infer on boundary permeability (Bucher et al., 2016; Faraj & Yan, 2009; Kislov et al., 2017) and, consequently, the process of knowledge transformation. This study aims to contribute to these gaps.

## Methods

### *Research Setting*

This longitudinal ethnographic study was conducted at a pediatric clinic at a Norwegian University Hospital between 2018 and 2021. Field work was deemed favorable to explore interactions (and lack thereof), means of coordination, and the emergence of a new practice as it unfolded in real time. The children's clinic launched eight interprofessional healthcare teams to holistically manage children's complex chronic problems (mental and somatic in nature) (Heggestad et al., 2020; Lygre et al., 2020). This is known as multimorbidity (Almirall & Fortin, 2013), which is considered a rising health burden due to the duplication of healthcare services it currently necessitates (Salisbury et al., 2014; Merode et al., 2018). Despite multiple prior consultations with various experts, these children's issues have remained a "diagnostic mystery." A lack of resolution poses the risk of being placed on early disability, which can have profound negative consequences for the child and their kin. Interprofessional teams, therefore, merit the hope of tackling such knowledge-intensive tasks (Huffman et al., 2014).

My informants comprised eight teams that covered a unique configuration of professionals across mental and somatic domains with expertise in multimorbidity: psychologists (PS), physiotherapists (PT), and pediatric physicians (MD) (Table 1). Hospital management selected team members from among voluntary specialists. The

heterogeneity in professional disciplines provided valuable opportunities to contrast findings across professions and teams.

**Table 1.** Overview of the Sample

| Teams | Medical Doctor | Psychologist | Physiotherapist |
|:---:|:---:|:---:|:---:|
| 1 | $MD_1$ | $PS_1$ | $PT_1$ |
| 2 | $MD_2$ | $PS_1$ | $PT_1$ |
| 3 | $MD_1$ | $PS_1$ | $PT_3$ |
| 4 | $MD_2$ | $PS_1$ | $PT_3$ |
| 5 | $MD_3$ | $PS_1$ | $PT_3$ |
| 6 | $MD_4$ | $PS_1$ | $PT_2$ |
| 7 | $MD_3$ | $PS_2$ | $PT_3$ |
| 8 | $MD_2$ | $PS_2$ | $PT_2$ |

*Note:* $MD_1$ and $MD_4$ = Neurologist, $MD_2$ and $MD_3$ = Gastroenterologist.

The teams were expected to merge mental and somatic practices through their complementary expertise. They were also challenged to self-define tasks, roles, and team processes but received feedback from an independent coach during three workshops. Teams met regularly, spending approximately an average of 4 h on each patient case within a neutral clinical setting (Figure 1).

This differs profoundly from a traditional specialized consultation process, which occurs within a time frame of 20 min. The patients and their guardians were present in four of the seven steps of the process. The teams initially met to review the patient history during a planning session, preceding a collective initial meeting with the patients and parents to discuss the core issues. Next, the teams conveyed their initial perspectives in a team meeting before engaging in various means of coordination (e.g., individual or joint consultations). Subsequently, the teams met to share information and conduct a decision collectively. Consecutively, the teams informed the patients and parents of their decision, where the case was either resolved or required further follow-up.

**Figure 1.** The Consultation Process
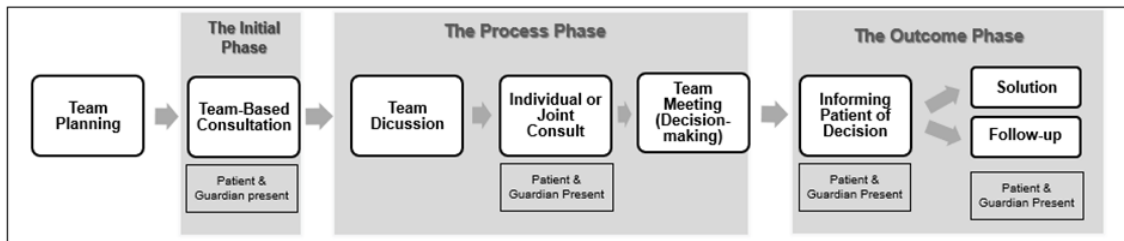


There are several reasons for choosing this context. First, healthcare reflects an area of expansion in knowledge mobilization (Martin et al., 2009; Powell & Davies, 2012), where robust jurisdictional boundaries separate professions (Abbott, 1988; Bucher et al., 2016; Finn, 2008). Clinical decisions are traditionally based on heterogeneous knowledge, entailing high levels of uncertainty and lack of interaction among disparate professions (Mano-Negrin & Mittman, 2001; Tasselli, 2015). Consequently, knowledge often fails to be translated across professional boundaries (Addicott et al., 2007; Mørk et al., 2010; Swan et al., 2007). Initiatives aim to disseminate knowledge, increase accountability, and increase efficiency through interprofessional collaboration (Wagner, 2000) and, therefore, accentuate tensions pertaining to boundaries among professions (Kislov et al., 2017; Kislov, 2018; Lamont & Molnàr, 2002; Quick & Feldman, 2014).

Second, the unfolding practice and coordination of interprofessional teams are currently underexplored (Lanceley et al., 2008). Problem complexities imply novelty that undermines foresight, where routine protocols become inadequate to address emerging and unprecedented coordination. This poses challenges in bridging knowledge (Ben-Menahem et al., 2016; Bruns, 2013; Cronin & Wingart, 2007).

Third, the teams comprise a unique configuration of three professions that do not traditionally collaborate. This differs from results obtained by extant studies that commonly focus on either emergency trauma teams or physician–nurse relationships (Atwal & Caldwell, 2005; Kilpatrick et al., 2012; Tasselli, 2015). Hence, this study offers

an opportunity to explore differences in merging knowledge practices between somatic and mental domains that have not been accounted for previously.

My background in social science and medicine granted privileged access to extensive immersion into the context, enabling the trailing of eight interprofessional teams prior to commencement and beyond. I was granted an access card, assigned an on-site desk, and encouraged to shadow teams, participate in real-time patient consultations, and conduct consecutive interviews. This offered an opportunity to explore the emerging practice and interactions in an extreme institutionalized context prototypical of professions (Abbott, 1988; Reay et al., 2017). An independent coach provided some introductory coaching of teams, enabling the researcher's role void in action research. The medical background attained rich insight into healthcare practice regarding jurisdictions, terminology, and the know-how of hospital cultures.

### Data Sources

Our ethnographic study encompasses comprehensive data (Table 2).

**Table 2.** Overview of Data Sources

| Data | Material | Hours | Pages |
|---|---|---|---|
| Observations | 45 team meetings (2–4 h) | 400 | 265 |
| | 22 interprofessional clinical consultations (4–7 h) | | |
| | 12 follow-up consultations (120 min) | | |
| | 4 training sessions (2–4 h per event) | | |
| | 24 interprofessional team lunches (30–60 min) | | |
| | 3 team workshops (6–8 h) | | |
| | 3 team workshops (6–8 h per workshop) | | |
| | Administrative meetings | | |
| Shadowing | Individual team members (~1 h) | 9 | 38 |
| Video Observations | 2 video reports (30 min) | 1 | 11 |
| Formal Interviews | 20 individual interviews (120 min) | 40 | 413 |
| Informal Interviews | 13 team-based interviews (40–60 min) | 24 | 177 |
| | 7 individual interviews (15–30 min) | | |
| | 15 critical incident interviews (30–60 min) | | |
| | 4 collective feedback sessions | | |
| Informal Conversations | Hallway conversations, discussions during formal dinners, informal coffee and lunch conversations, etc. | 64 | 53 |
| Documentary Data | Protocols, communication logs, emails, internal reports, newspaper articles, pilot reports, etc. | - | 170 |
| **Total** | | **538** | **1127** |

Extensive ethnographic fields notes were taken during real-time observations. Initially, I shadowed the team members to gain insight into disparate practices. Subsequently, I observed the teams in various activities (e.g., workshops and training sessions, team meetings, and patient consultations). The observation provided insight into interactions between specialties (and lack thereof), how activities and roles were organized and delegated between specialties, how jurisdictional negotiations played out, and the emergence of new practice. Initially, the observations focused on understanding how knowledge became transformed across disciplinary practices. Gradually, the focus on boundaries appeared central and, consequently, repeated interviews inquired into the boundary work and boundary-crossing activities of teams.

Both informal conversations and semi-structured interviews were conducted. I utilized semi-structured interview guides during the audio-recorded interviews, which lasted 120 min, on average, and were transcribed verbatim. The informants were asked to describe their roles and responsibilities. I encouraged the informants to reflect on the experiences of perceived overstepping or alterations of boundaries and the consequences thereof. To understand the wider context, I also analyzed documentary data and videos encompassing feedback reports from team members. This enabled data triangulation, in line with Creswell's (2013) recommendations. Figure 2 provides a chronological overview of the data collection process.

Peer briefings were conducted to validate the consistency of the findings to ensure robustness. Written consent was obtained from the team members and patients, and ethical approval was granted from the Norwegian Centre for Research Data and the Regional Committees for Medical and Health Research Ethics.

**Figure 2.** Timeline of Events
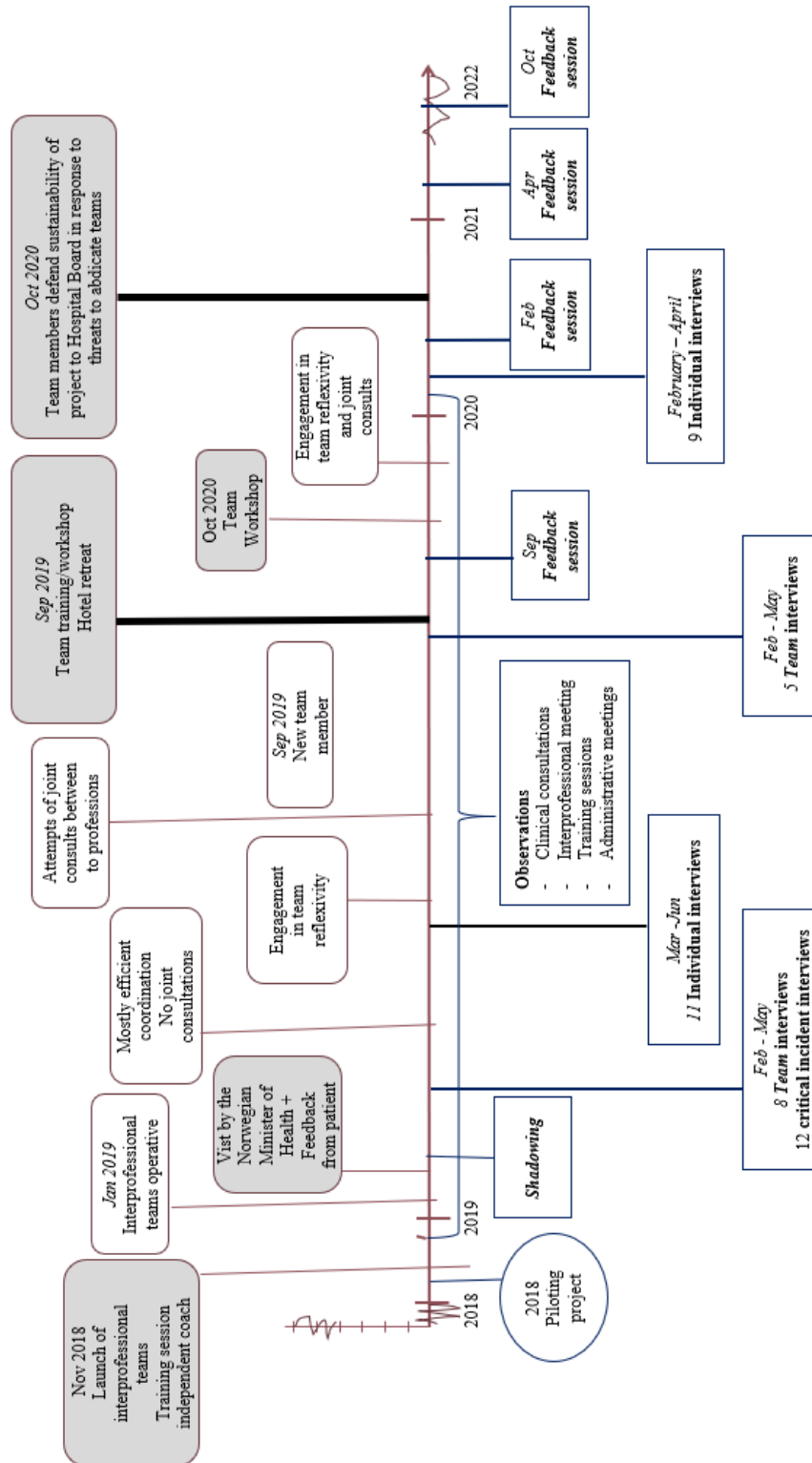


*Note:* The rounded boxes above the timeline highlight important events that occurred during data collection. The square boxes below the timeline display an overview of the data collection process.

*Data Analysis*

Initial analyses were empirically driven, entailing multiple iterations of open coding to describe emerging themes (Corbin & Strauss, 1990; Locke et al., 2020; Miles et al., 2014). Subsequently, I applied more focused inductive codes (e.g., "disagreeing," "clarifying," "undermining," "requesting," and "converging") using NVivoPlus12 to simplify coding. Based on my initial analyses, I gradually shifted my focus to the literature on professions, knowledge, and boundary work. While I considered various boundaries that impeded effective collaboration (Hernes, 2004), my main emphasis was on accounting for progressive temporal changes in knowledge boundaries (Carlile, 2002, 2004).

I identified four consecutive stages through which knowing in practice was transformed at the team level (4 Cs): contradicting, contending, converging, and cultivating. A template (Appendix A) was used to combine and connect codes that were linked to higher-level conceptual themes (Gioia et al., 2013).

Consequently, I was interested in understanding the underlying mechanisms shaping knowledge transformation. Thus, I identified "joint consultation" and "team reflexivity" as important boundary-crossing activities across cases.

Next, I coded on the basis of insights from research on boundary work (Langley et al., 2019) and explored strategies that either enhanced or reduced boundary permeability over time. Based on this, I identified three disparate boundary strategies: guarding, arbitrating, and rebelling (displayed in Appendix B). Subsequently, I assessed the temporal interplay between boundary strategies, mapping recurrent patterns of changes in boundary strategies, as suggested by Hallier and Forbeds (2004). I discovered that the enacted boundary strategies in teams varied, switching back and forth over time. This puzzle focused my search on identifying critical events, encompassing events of heightened emotions that would account for temporal shifts in boundary strategies

(outlined in Figure 3). Through conversations with informants, seven critical incidents that fit this criterion were chosen. These critical events exemplified the salient triggers that instigated switches in a profession's boundary strategies, which enabled me to assess the interplay between boundary strategies.

**Figure 3.** Chronological Overview of Critical Incidents
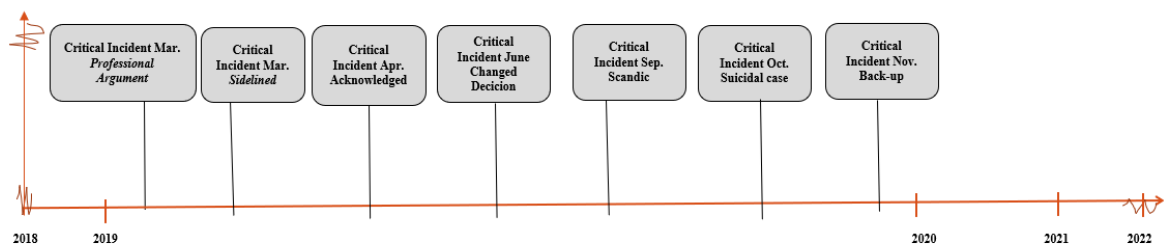


Successively, I used templates (King, 2012) to organize patterns of change in professional status, roles, and jurisdictions across the various stages of knowledge transformation (Appendix C). Next, I developed a model of knowledge transformation presented in the final part of the findings section based on this iterative analysis process.

## Results

The findings are organized into four sections. First, I present the stages of the knowledge transformation process at the team level. Second, I identify two critical boundary-crossing activities that increase boundary permeability. Third, I focus on the professional level, in which I present three boundary strategies and depict their dynamic interplay. Finally, I present my dynamic model depicting the process of knowledge transformation. The results are based on quotes and observations from actual dialogues, where the professions are anonymized (MD: Medical Doctor, PS: Psychologist, PT: Physiotherapist).

### *Knowledge Transformation Process*

I identified four progressive stages in the process of knowledge transformation in interprofessional teams (4 Cs): contradicting, contending, converging, and cultivating. While teams progressed sequentially through these stages, they cycled back and forth over time.

### *Contradicting Stage*

During the launch of the teams in 2018, two half-day collective planning sessions were held to encourage discussions on the practicalities of how interprofessional collaboration would play out in practice. During these events, the teams conveyed excitement and appreciation in interprofessional collaboration.

> **MD$_1$:** These patients have been in and out of the system. It has been tremendously tough not being able to solve these cases with traditional, uncoordinated efforts. The road ahead is not marked by any footprints yet, so what we're doing is truly ground-breaking.
> **PS$_1$:** These patients are so tough, and I think working together will help us solve these cases. It is a wonderful opportunity to learn.
> **PT$_2$:** I think working interprofessionally will "open doors" for us.

Immediate observations of the teams in action showed inefficiency in information sharing and decision-making across teams. Extensive strain in collaboration was rooted in deficient insight into the competencies of professional counterparts beyond stereotyping. The teams were challenged by dissimilar terminology, disparate time spent on tasks, the means to elicit information, and contradictory practices.

> **MD$_3$:** You cannot put diverse professions in the same room and expect us to collaborate. Our ways of questioning patients are too different. We pay attention to separate things.
> **PS$_2$:** Communication is challenging. It's not merely what we say to each other, but the way we convey information is tricky. My team members perceive my questions as vague, less scientific and time consuming. Collaborating requires insight and anticipation into the behavior of others, but we have no idea how to behave in each other's presence.

PT₃: It is hard to know what to share. We lack an understanding of what is perceived relevant to our team members and are used to doing things differently. Our contradictions complicate everything!

The observations indicated rigid adherence to professional knowledge bases, and team members became increasingly mindful of practice controversies (e.g., modes of eliciting patient information). Yet, the teams avoided publicly addressing differences or negotiating boundaries. This challenged their ability to decipher information and understand the intent behind each other's actions. Consequently, knowledge assimilation prevailed.

MD₂: It is all tangled up and we are "oceans apart." We feel so insecure of our responsibilities yet avoid addressing our concerns to be polite.

PS₁: It is complicated because we work in contradictory ways. Our terminology differs, and we refuse to yield preferences to conjoin practices. We spend too much time on the physician-part of the consultation, despite indications in need of a psychological approach. It is impossible to work on enhancing the patient's self-confidence and sense of achievement when patients are only being "heard" on their somatic concerns. Physicians' "shoot" the patient with overwhelming somatic questions in a mechanical and "efficient" manner, while my process is slow. I spend time building a trusting relationship. Doctors also tend to take abundant notes during consultations, which disrupts the attention and bonding that I consider is critical to enable patients to share sensitive information. Challenge status quo is difficult, and we have no idea how to make this work. The distance between us is simply overwhelming.

PT₁: Our «back packs» are too different and our competences discernible. While I assess patients in a playful and energizing way, my team members are straighter to the point – asking more direct questions, and frankly disregarding information that I find relevant. We have no idea on how to behave or act in this setting. We also tend to judge each other unfairly, because we have these assumptions and expectations of what a certain profession can and cannot do. It becomes a total mess sometimes. We are devoid of answers to mend our differences, therefore I retreat and mind my own business to make peace.

While the interviews uncovered how contradicting interpretations of clinical approaches and disparate focus hindered effective perspective integration, the observations revealed that the teams continued in discontented silence. Tasks were predominantly solved in

individual consultation, followed by a mutual case conferencing. Hence, specialists were incapable of suspending one's own view to explore knowledge fit, and many cases were left unresolved. The preservation of traditional hierarchies was void of challenges by lower-status professions. Consequently, physicians asserted leadership across teams, and somatic concerns were prioritized.

> **MD$_3$:** The physicians' decisions should be placed most weight – it is only natural.
> **PS$_1$:** We are all imprinted with the chain of command at the hospital. It is like we are standing on either side of a fence, and no one dares to cross over because you know that you have no business intervening on their property. Consequently, we never challenge arguments or claims by a superior.

Despite the uneven participation of specialties in decision-making across teams, neurologists were far less dominant in their role than gastroenterologists. Neurologists were inherently more attentive to patients' family backgrounds, interests, and home conditions, as they, to a greater degree, considered it essential for medical decision-making compared to gastroenterologists. Thus, observations indicated that neurology teams had considerably fewer tense conversations and less uneven participation than gastroenterology teams.

In summary, the *contradicting* stage is characterized by unacquaintance beyond the stereotyping of professionals' knowledge bases and unstructured team processes that foster uncertainty. While teams display eagerness to work interprofessionally, they have disparate intentions and perceptions of what this means in practice. Hence, professions remain absorbed with independent perspectives and enact professional customs in singularity. While sporadically exploring differences, teams predominantly linger unconversant of role negotiations and rising controversies to avoid conflicts. Hence, important information gaps are overlooked, and knowledge boundaries remain unresolved. Thus, pre-existing perspectives become the cornerstone on which the teams

base their initial judgments. Consequently, boundary permeability is weak, rendering learning merely incremental.

*Contending Stage*

Within approximately one to two months of teamwork, I observed increasing discontent among lower-status professionals concerning practice controversies and power differences across teams. There were rising confrontations and tense contestations of pre-existing boundaries. While contending enabled valuable insight into the knowledge bases of professional counterparts, contestation of hierarchies resulted in strained conversations. This caused physiotherapists to withdraw from conversations. Consequently, perspectives remained mostly fragmented, and decisions tended to reflect the power of authority.

> **PS₁:** Addressing our differences has made me realize that we have more contradictory approaches than I anticipated. Yet, it is tough to make suggestions on new ways to consultation patients, or to make room for one's own examinations and questions. I would assume one naturally "throws the ball" over to your team members when you are facing concerns outside your professional boundary, but that never happens…
>
> **MD₃:** Conversations are uncomfortable. There is so much tension and confrontations. The team is apparently not working as well as I presumed.
>
> **PT₃:** We are currently working side by side, not interprofessionally. Even though we have become aware of differences, there is little room for readjustment and accommodation to the needs of the team.

The observations revealed that boundary disputes were particularly prevalent in gastroenterology teams. Gastroenterologists conveyed that subordination was expected, and I observed that physiotherapists and psychologists were blamed for interfering with medical decisions without permission. During the interviews, the physiotherapists and psychologists pointed to the struggles and consequences of power imbalances. I observed that the physiotherapists were offered "assistant" taskwork and, thus, not appropriately

recognized for their expertise across teams. Their power extended to simple modifications of choices, as their information was essentially considered supplementary. During the interviews, the physiotherapists conveyed that the teams, especially gastroenterology teams, did not place value on their expertise.

> **PT₁:** My information is always sidelined and considered less important. I feel left out of the conversation. My expertise is not valued and there is no equality, so it's simply no point being part of the team.

However, I observed differences in the means of justifying claims to superiority by physicians. While the neurologists justified their superiority on the means of "legal responsibility resting on our shoulders," the gastroenterologists refuted contestation on the premise of "how medicine has been practiced for decades and have stood the test of time." The intense conversation among the specialists reinforced the personalization of knowledge claims and separation of practices.

> **MD₃:** Teamwork is like having experts constantly watch over your shoulder. I fear I might have upset my team members, but I refrain voicing my opinions as teams interpret it as critique.
>
> **PS₂:** We all attempt to impose our views, but the argument of the most powerful profession always perseveres.

Fierce contestation due to diversity in interest and practice rigidity afforded a weak learning environment. Interactions were strained, and during interviews, the team members acknowledged that they questioned their willingness to precede teamwork. These heightened emotions were particularly prevalent in gastroenterology teams, where the climate was profoundly more tense and claims to knowledge were made more explicitly.

> **PS₁:** Teamwork is stagnating because we are constantly in tug of war.
>
> **MD₂:** This is totally pointless! We are spending way too much time talking about conflicts. I sense the team perceives me as blocking them, holding them back. I can admit that I believe

the doctors should be in charge. However, I do not relate to the accusations of being a bulldozer!

**PT₁:** We are currently working co-professionally, not interprofessionally. It is so frustrating with the hierarchy battles, the dominance and "me" perspective. There is hardly room for readjustment and accommodation to change boundaries according to the needs of the team. How do you deal with situations where doctors explicitly tell you their profession entitles them to lead the team and have the final say in decisions? It makes me want to withdraw. It does not feel safe to override a profession of authority, not even for the sake of teamwork.

As the above citations show, there was a lack of psychologic safety and fierce contestation among the team members, who remained concentrated on marginal symptoms. Consequently, understanding the knowledge fit and adaptation of a local lens was intercepted.

In summary, the *contending* stage is characterized by unacquaintance beyond the stereotyping of professionals' knowledge bases and unstructured team processes that foster uncertainty. While teams display eagerness to work interprofessionally, they have disparate intentions and perceptions of what it means in practice. Hence, professions remain absorbed with independent perspectives and enact professional customs in singularity. While sporadically exploring differences, teams predominantly linger unconversant of role negotiations and rising controversies to avoid conflicts. Hence, important information gaps are overlooked, and knowledge boundaries remain unresolved. Consequently, boundary permeability is weak, rendering learning merely incremental. This contrasts with the converging stage.

*Converging Stage*

Engagement in boundary-crossing activities attained increasing familiarity with the knowledge bases of professional counterparts. Our observations revealed that the neurology teams entered this stage approximately five months sooner than the gastroenterology teams, which were less inclined to engage in joint consultations (e.g.,

six months of a highly collaborating neurology team toward 12 months of the least collaborating gastroenterology teams). In this stage, the teams were committed to overcoming differences to merge knowledge practices and resolve previous disputes. In contrast to previous stages, in this stage, I observed several examples of boundary crossing activities, such as engagement in either joint consultation or team reflections. Through these activities, I observed increasing mutual admiration in the competence of professional counterparts, vulnerability to critique, curiosity to learn new skills, and the provision of critical feedback. The team conveyed that it mended interpretation difficulties and accelerated knowledge sharing. Moreover, boundary-crossing activities enabled the professionals to learn skills outside their formal jurisdiction, but this nevertheless became a central aspect of their taskwork (e.g., new ways to elicit patient information or alternating leadership roles (a role that formerly belonged exclusively to the physician's jurisdiction).

Beyond facilitating the exploration of variations in perspectives, collective assessment enabled flexible "bending" of boundaries.

> **MD$_1$:** We would not have been where we are today without reflections. We have come to realize that we were well "marinated" in specific thought patterns and customs. Our opinions were so split. One must admit that oneself may be a part of the problem. Finding ways to treat each profession with respect, involved adapting to meet the needs of the team.
> **PT$_2$:** We have come to realize that disruptions by the doctor was not lack of priority, but a necessary multitasking. We must fight our "instincts", as the boundaries of our profession are well indoctrinated. Honestly, we never learned to question boundaries? Unlearning and daring to question the boundaries of our profession through reflections has been decisive!
> **MD$_2$:** It's takes courage to open yourself up and expose your weaknesses in reflections but is a necessity to move forward as a team. I was told that I was taking up too much space in consultation, and that the others didn't find my questions relevant. It made me aware that they lack an understanding of my discipline.

I observed that the teams became more open, and that information was shared without a sense of entitlement or fear of judgement. The teams were more inclined to challenge

perspectives and experimented with various tools (e.g., narrative story building on the board) to bridge perspectives. This enabled cyclical interpretation and reciprocal coordination. I observed occasional overstepping of knowledge domains, which dismantled some boundaries while preserving others.

> **PS₁:** It is sort of a culture change. The physiotherapist and I are accustomed to adapting according to the doctor's needs. However, we are becoming more courageous and comfortable to overstep boundaries. It is becoming more like a conversation around the table, rather than taking orders from "above".
>
> **PT₂:** Our tone of voice in team conversations has changed. We are not so tense anymore. We try to come to an agreement that is respectful and attentive to others needs. It has really blown some professional boundaries.
>
> **MD₄:** We have settled with "free seating's". We have come to terms with the need to reside outside our comfort zones, bending the boundaries somewhat. It has been developing for all of us.

In summary, the *converging* stage is characterized by alignment and merging of knowledge, as teams' cross diversity barriers in interpretation. Conciliating differences in knowledge domains occur by shifting focus from differences toward professional complementarity. Teams demonstrate a reduced need for power and self-enhancement, and disputes concede as professions relinquish mutually. Teams become more eager to learn from their professional counterparts, and controversies are met half-way. Enhanced knowledge reconciliation and adaptation facilitate arbitrage of certain professional boundaries, while others are left uncrossed. Consequently, boundaries become selectively permeable.

*Cultivating Stage*

Over time, the teams exhibited advancement in knowledge repertoires by capitalizing on the skills of their professional counterparts. There were greater variations concerning the time frame in which the teams arrived in the cultivating stage, ranging from

approximately 10 to 15 months. The observations showed that during this stage, the teams extensively engaged in boundary-crossing activities. This enabled a mutual understanding, respect, and admiration that helped mend differences in interests.

> **MD₂:** I was completely in "the abyss" on the extent in competencies in team members, and it "blows my mind" how much my team members have to offer for my own knowledge advancement. Through listening and observing, we are learning new ways to express ourselves. It affords a greater angle of perspectives when you must "take in" what your colleagues are saying and understand why they are saying it. By observing how questions are framed in different angles in the practice of other professions, I learn skills that is critical for my understanding.
>
> **PS₂:** We have come to understand one another, not just their field but also each other's' personal preferences for approaches. We do not have to discuss everything, because we have this common sense of understanding – knowing that we disagree on without having to say it out loud anymore.
>
> **PT₂:** We are creative because we have more confidence in each other.

I observed dissolution of hierarchies, as claims to authority and status positions yielded. During collective consultation, lower-status professionals, particularly physiotherapists, operated roles traditionally adhering to physicians (e.g., leadership). There was less evident separation among the team members.

> **PT₃:** It is easier now that information is shared without sense of entitlement or priority. The walls are finally coming down!
>
> **MD₄:** I have become more attentive to what I may learn, trying to step down and listen more than I speak, give people time and some slack.
>
> **PS₁:** Over time, the boundaries of my professions have become more fluid and less confined. We are no longer experiencing hierarchical conflicts and have become accustomed to, nearly expecting, overstepping of traditional boundaries. We are completely changing how consultations are conducted. We have learned to live with trial and error, questioning boundaries, thinking alternatively, and applying new approaches. I cannot describe how things have changed in words. We have just learned to play well together, sensing when someone needs a break and accept a change in roles.

I observed harmonious conversations, closer interactions, and cohesiveness. There was frequent back-up behavior from team members when a team member was confronted by

disagreeable parents. Moreover, I observed gentle greetings in hallways, and interviews revealed that teams often consulted with one another on adjacent cases in their specialized practice beyond teamwork.

> **MD3:** I feel a sense of belonging to my team and become joyful when I meet them in other settings. It has become easy for me to pick up the phone and call for assistance outside the team practice.
>
> **PS2:** I feel challenged and engaged by my team members.

Furthermore, I observed increasing experimentation with approaches adapted by professional counterparts (e.g., physicians adopted from the psychologist a clock tool used to assess sleep patterns, pain, etc.) and extended this practice into third-party contexts. This afforded the teams the opportunity to expand knowledge combinations and overcome differences in interests, which enabled diffusion of knowledge beyond team contexts.

> **MD2:** I have learned new skills and I use these new skills frequently outside teamwork. I have realized that I improve my own practice by adapting these tools to better understand the somatic symptoms of my patients. I have realized that working interprofessionally is not about including each other's expertise but adapting new approaches to expand my practice. This means that we must understand everyone's expertise, get actual experience in how it is used effectively.
>
> **PT3:** It is a continuous adjustment and adaptation to each other's needs to mend perspectives and tailor processes. We have attained a type of "infinity competence" – understanding how things are truly connected. Working with the team has "opened many doors" for me, even outside this practice.

Comparing the temporal processes of knowledge transformation across the teams revealed that the neurology teams reached the cultivating stage earlier than the gastroenterology teams. While the neurology teams reached the cultivating stage within approximately 10–12 months, the gastroenterology teams entered this stage six months later on average. The interviews disclosed that advancement in knowledge transformation

stages hinged on combining teams' engagement in boundary-crossing activities. My observations revealed that the neurology teams concurrently engaged in reflection and joint consultations at earlier stages compared to the gastroenterology teams, thus reaching the cultivating stage sooner.

In summary, the *cultivating stage* is characterized by synchronism in knowledge, flexibility, and tolerance for ambiguity. Teams coordinate with extreme interdependence in their collective assessment of patients and the enactment of team members' roles. There is confluence of perspectives, extension of responsibilities, and active pursuit of advancement. Teams explore previous mistakes and experiment with new knowledge bases by juxtaposing roles. Thus, teams prosper in knowledge co-creation, adapting learned skills in third-party contexts. Hence, this enables teams to successfully cross pragmatic knowledge boundaries, where boundaries become permeable, overtly achieving knowledge transformation.

To summarize the various stages of knowledge transformation, boundary permeability increases progressively as teams move toward the cultivating stage. From being impermeable during the contradicting stage to becoming fully permeable in the cultivating stage, knowledge transformation is considered to be accomplished in the cultivating stage.

### *Boundary-Crossing Activities*

As described in the previous section about the four stages of knowledge transformation and practice change, two coordination activities were found to be particularly critical for crossing knowledge boundaries: joint consultation and team reflexivity.

*Joint Consultations*

In contrast to conducting sequential consultations, followed by a collective case discussion, some teams engaged in flexible and experimental collective assessments in the gym or the consultation room of a physiotherapist.

> **PS₂:** Sometimes we start out the initial conversation in the gym, allowing room for the physiotherapist to play ball with the patient, while the rest of us observe and take turns asking questions.
>
> **MD₄:** Joint consultation allows me to observe flexibility and motor functions, without asking the child about their physical abilities. It is also a safe way for the psychologist to ask vulnerable questions. It saves us time and engages the patient more actively.

Reciprocal observations in joint consultations enabled teams to gain insight into the competence of their professional counterparts without explicitly addressing their differences.

> **MD₁:** Observing each other in joint consultations enables us to get a clearer picture on how to accommodate one another's needs. Psychologists are so good at summarizing and giving feedback to the patients, while the physiotherapist have their unique ways of making the child comfortable through playful exercises. I learn how to pose questions differently, which yields completely different answers. This is critical because it may completely change or challenge my evaluation of the child's condition.
>
> **PT₂:** We learn about the "grey areas" of our competences – everything that you cannot articulate in words. It also provides opportunities to reflect on how disparate practice may complement your own practice. The physician and I saw a patient in the physiotherapy-room. It enables us to evaluate from a new angle - such as how the patient responds to being thrown a ball. You get a whole different "picture" of the patient's condition.
>
> **PS₁:** While controversies of my team members used to annoy me, these differences no longer become relevant during joint consultation. For example, when physicians extensively take notes in joint consultations it might be ok, because then someone else is taking over questions or examinations of patient. We can write things down, switch who is listening or talking without interrupting someone's lines of questioning.

Many questions that had been previously posed to the patient in a direct and closed manner were answered through observations (e.g., the patient's motor functions). There

was room for flexible cross-examinations by the team members and accommodation to needs and preferences. This contrasted previous sequential consultations in which professions took turns asking questions, focusing on fragmented pieces of information, and kept interrupting each other.

> **PT₃:** I pick up on the way the psychologists ask patients and such. It is a process of self-enhancement to engage in these consultations.
>
> **MD₄:** It is not just the means of communicating when engaging in joint consultations – it everything that occurs in that situation. It is how we make sense of things together. We manage to connect the mind and the body, and I bring what I learn in these joint consultations into my own clinic. The way to talk to patients, how to ask questions, focusing on motivation and sense of accomplishment are aspects that normally lies beyond my tasks as a physician. I have gained a much stronger sense of what a psychologist or a physiotherapist can do. The new skills make me a better doctor. Medicine tends to be very specialized, but joint consultation provided opportunities to learn more in a broad sense - achieving the very opposite.

Joint assessment provided neutral grounds for concession, as neither specialty was on "familiar grounds." Consequently, hierarchies were more easily "shaken," and symmetry between the involved disciplines enabled new practice to emerge.

> **PT₁:** Taking turn observing and questioning in a joint consultation enables us to look through "different glasses" at the same time. It provides a shared experience that enables us to better discuss the core of the patient's problem. Everyone cannot speak concurrently, but we see things differently when we are in a listening or talking position. We also learn to formulate ourselves in ways that team members understands where we're "going" with your line of questions.
>
> **PS₁:** Having been an observer for a while, I learn why physicians ask questions in a certain order. Joint consultations provide the time to reflect on my own interpretations while listening to my team members. I also find it easier to ask questions in between physiotherapists exercises, because it sort of warms up the patient to respond to difficult questions. It helps break the inherent "patterns" of ownership to knowledge claims.
>
> **MD₃:** There is information that appears from our joint consultations that allow the pieces of the puzzle to fall into place. I never would have thought of the questions that brought forward these pieces myself.

As shown above, joint consultations released specialists from fragmented practice,

depersonalized knowledge, and enabled flexible and experimental unfolding. Thus, exclusive engagement in joint consultations moved teams from the contradicting stage to the converging stage.

*Team Reflections*

Explicit dialogue on team dynamics enabled teams to confront controversies in practice, as the teams negotiated issues pertaining to professional differences or disparity in experiences that aided in establishing common ground. While I observed that the reflections brought on heightened emotions and conflicts at times, they enabled the team members to become more mindful of how their behavior influenced the team's ability to perform effectively. As shown by the quotes below, reflections surfaced important controversies in perspectives that were essential in bringing the teams into the converging stage.

> **PS₁:** We did not realize we were on opposite sides on decisions before engaging in team reflection. It saves time spent on confusion, disagreements, and mistakes. In attempt of efficient, physicians take notes on the computer and hurry along with their direct and insensitive lines of questioning. This totally disrupts the conversation from my professional view, as it influences what patients share. When the patient notices that your concentration or focus is elsewhere or multitasking, they hold back. In contrast, I listen and respond patiently in a consultation, allowing time for answers. I had to explicitly confront the team on our controversies to mend the differences. It has also enabled mindfulness to adjust how we speak as our terminology tend to differ.
>
> **MD₃:** We are initially prone to focus on our own discipline, but reflections help us must mind the diverse interests and needs of my team members too. We have gotten to know one another's strength & weaknesses, and therefore better complement each other.
>
> **PT₂:** I was annoyed by the physician who constantly showed up late. However, confronting this issue made me aware that although he does not bring notes to the meeting, he has everything logged in his mind. Reflections made me realize that he's not late due to lack of priority or disrespect. Reflections prevent misjudgment as it enables us to address "the elephant in the room" - facing problems that had grown as large as "mountains".

Observations and interviews revealed that exclusive engagement in reflections without

participating in joint consultations moved the teams into the converging stage. However, as suggested previously, simultaneous engagement in both boundary-crossing activities enabled the teams to reach the cultivating stage. This claim is further highlighted in the quotes below.

> **MD2:** It is hard to understand that a similar event can be viewed in such opposite terms. Reflection upon our joint consultation enhanced my awareness of how different we are. It enabled us to create new practice that capitalizes on our competencies.
>
> **PT1:** We may have completely opposite experiences of the same experience that is not made "visible" without consecutive reflection. Thus, joint consultations followed by reflections provide insight into why we ask questions in a specific way, or why we behave the way we do. It helped me to understand why a team member felt such strong urges to do things a certain way or asks questions in a specific manner. It took us some time to realize that reflecting differs from discussing problems or debriefs in the hospital in general. We usually have dialogues pertaining to error correction and learning from a specific case, rather than on mending specialty differences.

While uneven participation in boundary-crossing activities explained team-level temporal variations in stages of knowledge transformation, I discovered that the degree of engagement in these activities was dependent on the display of three distinct boundary strategies: *guarding, arbitrating, and rebelling*.

### *Boundary Strategies*

This section emphasizes the individual strategies displayed by professionals.

### *Boundary Guarding*

Guarding was instigated in response to situational triggers that posed threats to the professionals' status or authority (e.g., alteration in leadership among team members). This disengagement strategy demarcated diagnostic lines, separating roles and responsibilities. Physicians were particularly inclined to guard.

**PS₂:** I feel like I need permission to do things. I am mindful of what I can and cannot comment on because we operate with strict jurisdictions.

**PT₁:** I am well "marinated" in my role and avoid overstepping boundaries. To the degree that I overstep jurisdictional boundaries, it is not done lightly. We are trained to keep within our own discipline.

**MD₂:** Are you afraid that I will become a "hobby-psychologist"? *[Laughter].* Let me know if I overstep, because I am very mindful to not overstep your therapeutic field myself. While I am positive to teamwork, one should never overstep boundaries that they have no business trespassing.

I observed how the physicians claimed exclusive right to leadership positions, fiercely protecting the jurisdictional scope of practice from professional counterparts.

**PT₁:** It is a constant battle for power. The doctor is dominating, abruptly changing decisions and expecting the rest of us to comply. Doctors behave as though they are GOD! I have horrific experiences from having overstepped the boundaries of my profession. I have been given direct and clear feedback that I need to stay out of the way. It has become a spinal reflex.

**PS₁:** The doctor keeps trespassing onto my domain. Yet, he slapped his hand on the table as I overstepped onto his boundary. It is difficult to react appropriately in these circumstances!

By appealing to discursive norms of superiority, legitimized competence, and professional entitlement, gastroenterologists, in particular, weakened the position of lower-status professionals. For example, while the teams eventually agreed to alternate leadership among specialties, the gastroenterologists refused to entitle this role as "leadership." Rather, it downplayed the role by using the title "conversation chair."

**MD₃:** I don't think every profession can lead. Not everyone has training or experience in these matters. I'm not comfortable with other professions in power. Doctors should be in charge. I'm used to being "in the driver's seat", finding it strange if another profession were to replace me.

**MD₂:** This is totally pointless. Talking about professions – who is taking up most "space" in the room. Continuing this conversation is like shooting oneself in the head. We are talking too much about tension between professions, and poor team dynamics. It is portrayed as though we, doctors, are standing in their way – that I am bulldozing them down.

**MD₁:** I don't think we should entitle someone else as leader – that awards too much power. Rather, we should name it "chairman" or something…

As shown above, stereotyping and lack of confidence in professional counterparts resulted in shallow interaction, preservation of hierarchies, and separation of taskwork. Hence, boundary protection caused the specialists to withdraw from the conversation. Consequently, knowledge remained fragmented. The team members were less inclined to engage in joint consultations when guarding boundaries. Rather, they were more prone to conduct consultation sequentially, followed by a mutual case conferencing. However, in situations of engagement in joint consultations, the team members were uncomfortable, tense, and contradicting each other.

> **PS2:** I asked the physician if I could join in on "his" consultation - be a "fly on the wall" in a sense. He became very quiet and reserved. It was obvious that he did not want to join in a consultation.
>
> **MD3:** I have barely participated in joint consultations. The psychologist joined in once. To put in bluntly – I became very quiet. I become so stressed by having other professions in the room. It is ok with students but having another profession watching is like having an auditor that checks every move I make. Truthfully, it frightens me. Joint consultations are messy. There are interruptions, confusion of authority and the roles become blurred beyond our comfort zones. One easily disrupts or "steps on the other person's shoes", and there is less autonomy.

As shown above, the team members portrayed engagement in joint consultation as a state of heightened tension—where practices collided, and boundaries were contested. Lower-status professionals conveyed that the physicians expected submissiveness, particularly from gastroenterologists.

> **PT2:** I do not feel like there's room for me to join in on the physician's consultation. There is too much tension…The physician tends to ask his somatic questions, and I just sit there and listen. Even the questions that belongs to my professional domain is being placed in the hands of the doctor…
>
> **PS1:** The physiotherapist and I often are just "given" an observing role, feeling we are intruding on the physician's consultation. In my experience, the physician takes over my domain - occupying the entire "scene". I do not claim the sole rights to psycho-social questions, but I do mind when I become invisible.

While reflections enhanced awareness of professional differences, boundary guarding yielded tense and conflicting reflections pertaining to power inequalities. Consequently, guarding had a negative effect on the process of knowledge transformation, functioning as an inhibitor that reduced boundary permeability.

> **PT₃:** There is no culture for feedback at the hospital. We are not used to being evaluated or challenge each other's point of view. Yet, these reflections made us question hierarchies.
> **PS₂:** There is an ongoing negotiation on how to deal with "mesh" of alterations in roles. We fear these confrontations. We easily become defensive and emotional. It's tough to become vulnerable.
> **MD₂:** Reflecting generates tension and makes me feel that the team is not working as well as I presumed. The dialogues are uncomfortable – they are all about corrections.

Comparing the teams, I found that the gastroenterologists were more inclined to guard the boundary compared to the neurologists, who rather arbitrated. This can explain why the gastroenterology teams also lingered for longer durations in the contending stage.

*Boundary Arbitrating*

Boundary arbitrating encompassed diplomatic endeavors that centered on selective penetration of certain boundaries while simultaneously prohibiting the transgression of others. This semi-flexible strategy permitted situational overstepping and depersonalizing of particular knowledge claims. There was adaptive interaction and consensus-driven decision-making to sustain peaceful interactions. The psychologists, in particular, arbitrated early on, while the neurologists engaged in this strategy within a short time. However, I observed display of this strategy among the gastroenterologists in distinct occurrences, such as situations in which there was a need for back-up from team members as the patients' guardians challenged the physicians. My observations revealed that arbitrating enabled the teams to alternate leadership among the team members.

> **MD₄:** Shall we choose the most competent leader, or should we alternate?

**PS₁:** I think the one who should lead, should be the one whose discipline covers most of the patients' complaints. Sometimes we must take on a role according to the needs of the team – even though the role lies beyond my domain.

**MD₁:** I think it is optimal to shake the hierarchies to some extent, but not remove them completely. You can yield and alter some roles, while others must be preserved. It might be OK to alternate who leads for a while, and then it can be brought up for evaluation later. It is not a one-size fits all kind of practice.

Arbitrating enabled the teams to become adaptive, reconfigure roles, and tailor solutions to suit the patient's needs. The gastroenterologists lingered compared to the neurologists before eventually arbitrating.

**MD₂:** I know I have conveyed my resistance towards these joint consultations, but I am willing to give it a try. I may have been wrong about this whole thing. Yet, I think it is important to let everyone get a chance to "share the scene" if we do this.

In addition, the physiotherapists and psychologists used different methods to extend boundaries. While the psychologists gently pushed and proclaimed exclusive expertise, the physiotherapists carefully invited input on their thoughts.

**PT₂:** We are by no means equal still. I often end up listening – feeling like audience in joint consultations, but at least the physician has put his guard down to allow me to join in. Overstepping must be done carefully. You can tell whether it is OK by the tone of your team members' voice. It might be a total rejection or an invitation. At times I just turn to another profession and invite them to give input on my thoughts, and carefully offer my line of thought – sometimes that affords some influence. Yet, I do not think the physicians are aware of how this alters restrictions between us.

**PS₂:** In my experience, people are submissive to hierarchies, but tend to adjust without too much discomfort if we push carefully.

**MD₁:** I might handle overstepping my domain in a positive matter if they find something relevant. We have agreed on certain areas where it is OK to overstep, even if it sort of goes against with how things are done in hospitals…

During arbitrating, the team reflections were change-oriented, involving constructive criticism.

> **MD4:** We acknowledge that in lack of open dialogue, we will face the same issues repeatedly. It enables us to "park" our frustrations, make sense of an event, and find new ways to solve issues – basically enables us to "find land in a stormy ocean". It is important that we explore why we disagree, rather than avoid confrontations.

Boundary arbitrating enabled stability and selective permeability of professional boundaries, which consequently enabled converging practices.

*Boundary Rebelling*

Rebelling encompassed the efforts to alter or dissolve boundaries. The physiotherapists, in particular, pushed to relinquish hierarchies. Rebelling challenged the status quo, as middle- and lower-status professionals claimed equality and recognition for their competence.

> **PT1:** We challenged the team to operate beyond our disciplinary boundaries. It resulted in less rigidity concerning "leadership" and more flexibility.
>
> **PS2:** I pushed on because I just wanted to learn. I wanted to see what went on in the physicians' consultations. I did not take no for an answer, though it was obvious that he was trying to reject my request. To get permission, I had to be persistent and subservient. I took on new roles without apologizing for overstepping. By claiming equality, we gain respect, trust, and confidence. Having the courage to challenge boundaries enabled us to endure a whole lot of sediment along the way.

While pushing for enhanced authority was a prominent feature of lower-status professionals early on, the psychologists progressively displayed rebelling behavior over time. During joint consultations, this was particularly effective in enabling the physicians to downplay their authority.

> **MD1:** The hierarchies are spontaneously changing during joint consultation. I have come to see that there are possibilities outside my comfort sone, but it requires continuous adjustment and adaptation. One must let go of the need to mark territory. Just going along with the physiotherapist in lead has been quite the learning experience. We now operate with a flat structure. I am sometimes awarded the lowest ranked role, conducting administrative work.

It's fair to say that teamwork really challenges boundaries. However, you realize along the way that you know less than you thought, and others know more than you expected.

**PS₁:** Even though I am a psychologist, I do not hold sole ownership or they only key to psychological insight. I have realized that others have much to contribute on this area. I have learned new angles and come to respect overstepping. Smashing "the walls" between us is no longer a reaction, but something we push for.

Rebelling enabled adaptive leadership and was awarded equal influence in decisions. Yet, rebelling required courage to change, the vulnerability to seek feedback, and the willingness to downplay one's own profession for the sake of the patient. My observations revealed that the teams collaborated more effectively when lower-status professionals obtained the role of leadership. They were more inclined to ask for input, summarize, and reinterpret findings in understandable ways. Rebelling enabled teams to tailor adaptive and innovative solutions as they had to continuously challenge existing practices and boundaries.

**PT₃:** You can never sit comfortable in your knowledge base, you must constantly change, seek input, and become challenged to improve. You must be "awake" and conscious of your behavior, yield to the needs of your team and juggle your approach. It is not an automated process, but one where you tailor something new by pushing boundaries.

PS₂: Working interprofessionally is about making more room for your colleges than yourself.

As shown above, rebelling enabled frequent overstepping of disciplinary domains. Rebelling during boundary-crossing activities aided in bridging the realms of specialties and boosted innovative emergent practices beyond the team context.

*Interplay of Boundary Strategies*

I discovered that critical events instigated changes in team boundary tactics. The first critical incident embodied disputes regarding authority in decision-making and leadership, where the physiotherapists and psychologists felt side-lined and undermined.

293

**PT₁:** I'm upset! I was completely overrun by the physician. I am just so provoked! The physician is set on solving this case alone.

**PS₁:** Yes, we were clear on our wishes to not engage in this theme. He is dominating us.

**PT₁:** Yes, we are not respected. There is this above-down attitude! My competence is not recognized. Although I have beyond 15 years of experience as a team leader, a physiotherapist is apparently not fit to lead. I feel bulldozed, angry, and frankly sick of this "better than us" attitude. What is going to happen from this point? How are we supposed to collaborate after such an event? It is impossible to provide critics when your someone's "ears are shut off".

**PS₁:** My role isn't being taken seriously either. Problems are being "solved" without my evaluations, at it is not easy to present my views. I do not know if confrontation will change things. I am just exhausted. It is not comfortable for either of us to challenge leadership when a superior part is unwilling to change.

While the teams initially arbitrated in the contradicting stage, perceptions of inequality, feeling side-lined, or threats to identity tended to instigate a change in the strategy to boundary guarding. Similarly, I observed a change from arbitrating to guarding in another team, where the physicians and physiotherapists had concluded the diagnostics of a patient during a joint consultation in the absence of having discussed the situation with a psychologist.

**PS₁:** I felt "parked" in the conversation. My profession was disregarded. My work is something beyond mental diagnostics, but my profession is «drowning» in the somatic prioritization. My role is always side-lined until somatic concerns are revoked.

Another critical event occurred during a formal overnight gathering at a hotel. The purpose was to allow teams to share experiences of learning across teams. An independent coach conducted an exercise in which the teams were paired with each other and asked to assign a percentage according to their perception of each professional's contribution to the teamwork. This instigated heightened emotions, which raised the level of tension in the team.

**MD₁:** I think it changes from time to time, and it is very subjective. I scored 40% of contributions owning to the physiotherapist, and an equal share divided between the

physician and psychologist. In my opinion the physiotherapist contributes beyond their disciplinary domain and "glues" the team together.

**MD₂:** We cannot retrospectively look back and discuss who contributes the most. It creates conflicts – splitting us rather than uniting us!

**PS₁:** Initially, I presume that everyone shares the same – we all bring different contributions "to the table". In my experience, the psychologist contributes about 30%, maybe 50% on the physician, and 20% on the physiotherapist.

**PT₁:** I think the psychologist and physiotherapist as professions are more important for the patient. We help patients see things differently.

**MD2:** Are you saying that we, physicians, are standing in your way?

**PS₂:** It might depend on my own insecurity of how much place I carve out for myself in this team. This is new and we do not know the boundaries between us, which areas can we overstep and which not… It is tough to answer these questions…

**MD₂:** I must admit that we cannot allow every role to be "up for grabs". The physician should be entitled to lead the team, but I sense that some of you feel that I am overstepping my boundaries and dictating your actions….

This specific incident enlightened the salience of boundaries within the team. The psychologists and physiotherapists challenged physicians, demanding equality and acknowledgment for their expertise. The gastroenterologists, in particular, guarded their boundaries, suggesting that leadership and respect is a matter of confidence that needs to be earned and delegated through the physician's authority. Yet, the psychologists and physiotherapists highlighted that guarding boundaries made them withdraw—derailing collaboration.

> **PS₁:** I challenge why physicians presume that they naturally are entitled to lead the team, and present findings that lies within my domain. I react when others report findings on my behalf. Sometimes when we have decided that I should lead a specific case, the physicians tend to take over this role very quickly in the middle of conversation…I would never sum up the somatic finding. That is overstepping!
>
> **MD₃:** I admit I am inclined to "run the show", but I presume psychologists and physiotherapists are more uncomfortable taking on this role…
>
> **PS₂:** When someone becomes dominating, I personally withdraw from the conversation. Why do you presume that we are not fit to lead? What are the qualifications of a good facilitator or leader?

> **MD₂:** I can see that you are experiencing that the physicians are bulldozing you down. If we cannot address this within the team, I do not see how we can find a solution addressing this across teams. Do we need to address all our differences?

I observed differences between the neurology and gastroenterology teams, where the neurology teams were more inclined to arbitrate than to guard.

> **PT₂:** It is so strange that the neurologists can bend some jurisdictions, while granting some respect and equality in roles in gastro-teams seem impossible….
> **PS₁:** I cannot believe they lack this much insight into how controlling and conflict-provoking their actions are! It is like this unwritten rule that they are entitled to overstep boundaries, but we must "lay low in the terrain". If a leader facilitates the conversation and hands over "the ball" whenever we touch upon someone's else's domain, we will solve many issues in the team.

I observed extensive emotional tension in the aftermath of team confrontations. Consequently, each physician decided to skip dinner and spend the night at the hotel in discomfort. Commencing dialogue back at the hotel the next day, the gastroenterologists across the teams conveyed in interviews that they had hardly slept through the night due to the unpleasantness of being confronted and were portrayed as dominating. During a collective meeting between the physicians, they agreed to bend some boundaries while keeping others intact (e.g., while deciding to alternate leadership roles, they downplayed this title to the facilitator). Hence, they changed strategies from guarding to arbitrating.

> **MD₁:** We had a conversation yesterday amongst physicians. Let us not exalting the leadership function. We think that not assigning a leader role, but maybe testing out alternating a facilitator role could work. When the case is mostly somatic, a physician will lead, but when it is mostly mental issues a psychologist may lead.
> **MD₂:** Yet is everyone truly capable of taking on this role? They need to convey the team's decision, induce time-outs, and feedback needs to be structured and conveyed professionally. I am not sure everyone possesses these qualifications!?

As shown above, courage from lower-status professionals to confront difficult matters triggered a switch in boundaries from *guarding* to *arbitrating*. Another incident that

instigated a similar switch in strategies was a situation in which a physician requested feedback.

> **PS₁:** I was blown away when the physician asked directly for my opinion and feedback. I felt valued, that my opinion mattered. I was respected and acknowledged as an equal part, in which my area was given priority for change. It completely changed the collaboration climate. It made me feel more inclined to request feedback too or ask questions in areas my experience came out "short".
>
> **MD₂:** I have come to see that there are possibilities outside my comfort zone, but that it requires continuous adjustment and adaptation, and letting go of the need to mark territory.

Recognizing and valuing the competence of the psychologist triggered a change in the boundary strategy. Additionally, I observed a change in the teams' strategies from arbitrating to rebelling, where a physician had reluctantly agreed to engage in a joint consultation with a physiotherapist. While observing the physiotherapist in action, the physician withdrew from the consultation. The physician abruptly removed the patient from the room, explaining to the physician that the child appeared suicidal and, therefore, required service beyond physiotherapy. The physician contacted the psychologist, and through joint consultation, the physician became impressed by the psychologist's ability to pose difficult questions and assess the patient respectfully. The psychologist had earned respect and, accordingly, was deemed fit to lead. Upon interviewing the team, this event changed their course of action – switching strategies to rebelling.

> **MD₂:** I have become impressed by the two of you. I had no idea how to deal with this issue, nonetheless any idea of the range of competence the two of you have in managing such issues.

As shown above, back-up behavior, recognition, and trust are essential to yield a rebelling strategy. Recognition of the competence of professional counterparts enables teams to collaborate more effectively, renewing faith in teamwork.

> **PS₂:** The physician truly recognized my role and expertise in front of the patient, standing in agreement with my decisions. It made all the difference! We would never have been able to

solve this case without overstepping disciplinary jurisdictions. It provided recognition of my competence.

While I discovered that critical events could switch strategies from guarding to rebelling, certain triggers can also initiate the opposite. Stressful consultations in which the parents refused to accept a diagnosis and held the physician responsible pressurized the physician to enforce hierarchies in decision-making. Consequently, the physician overruled the team's decision.

> **Parent:** You all need to step down from your "high horses" and start communicating! If the doctor thinks it might be something physical, this is what we must look further into.
> **PS₁:** I cannot stand by this change in decision.
> **PT₂:** Well, now the physician has promised to continue diagnostic testing… We apparently have no say in the matter, so there's nothing more left to do.
> **PS₁:** I do not understand the point of this teamwork. What is this? We were totally unprepared, and upon some resistance by the patient' parents, we just reconfigure our decision. We have worked so hard to become equal partners in decision-making. Now we end up with another unresolved case, that just keeps adding work without benefiting the patient. These patients enforce power and authority over what we do and how we relate to one another….

Approximately 18 months into teamwork, I mainly observed boundary rebelling across teams. The gastroenterologists who initially had engaged extensively in boundary guarding approached the hospital board upon threats to dissolve teams and defended the right to continue interprofessional collaboration. During the interviews, the gastroenterologists described how they had come to consider themselves ambassadors of boundary rebelling. They conveyed that they had realized the benefits this offered for their own advancement, as well as benefited the patients. These findings accentuate the temporal changes in boundary strategies and the interplay among them. This underscores how various boundary strategies yielded disparate engagement in boundary-crossing activities and the consequences it inferred on the process of knowledge transformation.

*Process of Interprofessional Knowledge Transformation*

I proceed by presenting my model, which depicts the process of knowledge transformation in interprofessional teams (Figure 4). This model demonstrates a temporal view in which boundary permeability increases as teams progressively pass through the consecutive stages. Thus, boundary permeability spans from impermeable during the contradicting stage, strong in the contending stage, weak during the converging stage to fully permeable in the cultivating stage. As indicated in the model, boundary strategies influence this permeability, accounting for dynamic movement in which teams might revert to previous stages when boundary guarding and, consequently, weaken boundary permeability.

**Figure 4.** Influence of Boundary Strategies on the Process of Knowledge Transformation in Interprofessional Teams
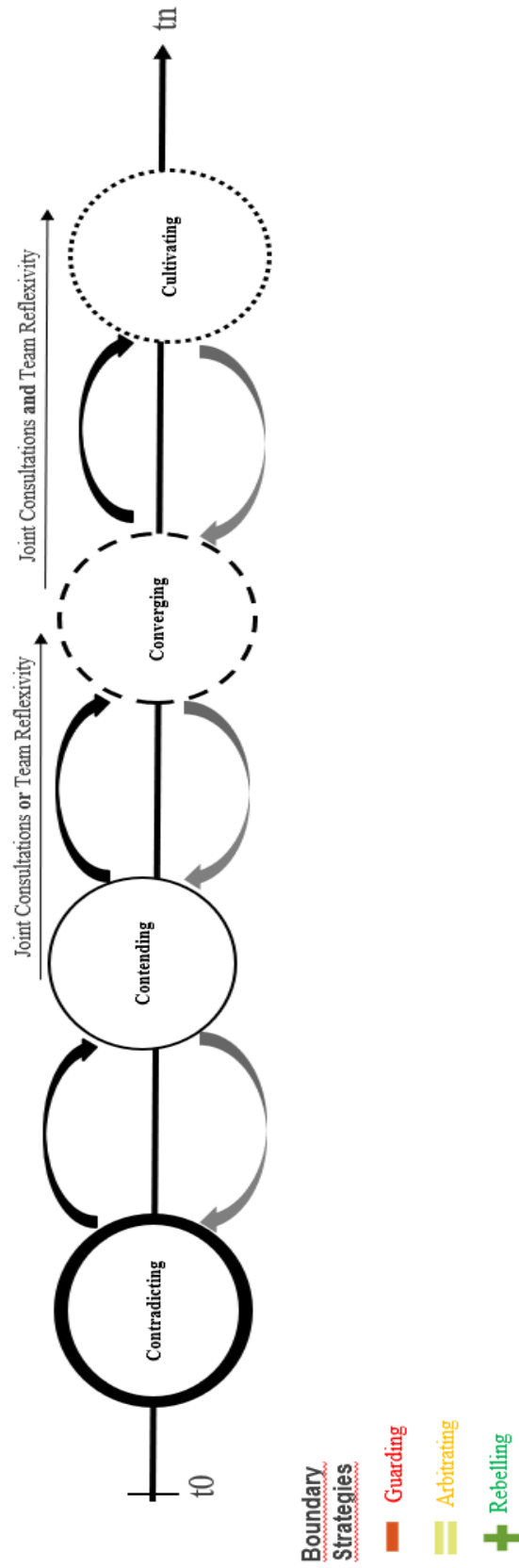
In contrast, rebelling boosts the progression in knowledge transformation, increasing boundary permeability. Arbitrating stabilizes (neutral effect) the current level of knowledge transformation in teams. This indicates selective boundary permeability. The model additionally shows that while engagement in either joint consultations or team reflexivity facilitated converging, the combination of these boundary-crossing activities was necessary to achieve the cultivating stage.

**Discussion**

In this paper, I focus on how knowledge transformation occurs in practice in an interprofessional setting and address the following two research questions: *How does the process of transforming disciplinary knowing in practice unfold in interprofessional teams? What boundary strategies do professionals employ in the process of knowledge transformation, and what is the interplay between these boundary strategies?* I will now briefly respond to these questions on the basis of my findings before discussing them in relation to previous research.

My study indicates that interprofessional teams progress back and forth through four distinct stages of knowledge transformation: contradictory, contending, converging, and cultivating. Differences in knowing in practice contradict established practices, and jurisdictions might create knowledge boundaries that challenge interprofessional collaboration. However, these differences can be surmounted through engagement in boundary-crossing activities that promote strategies of engagement. In these teams, I find joint consultations and team reflexivity to be particularly important activities used in combination.

Furthermore, I identify three boundary strategies that reduce (guarding), stabilize (arbitrating), or boost (rebelling) knowledge transformation. Collectively, my findings comprise a dynamic model that displays the interplay between boundary strategies and

their impact on knowledge transformation. I highlight a representation of the various knowledge boundaries proposed by Carlile (2002), and relate these to the various stages of knowledge transformation and the interrelated boundary permeability in Table 3.

**Table 3.** Knowledge Transformation and Knowledge Boundaries

| Knowledge Boundary | Contradicting | Contending | Converging | Cultivating |
|---|---|---|---|---|
| Syntactic | Strong | Weak | Weak | Weak |
| Semantic | Strong | Strong | Weak | Weak |
| Pragmatic | Strong | Strong | Strong | Weak |
| Boundary Permeability | Impermeable | Thick | Thinner | Fully permeable |

### *Theoretical Contributions*

I make the following four contributions to the literature on professions, knowledge, and boundary work. First, I answer calls for empirical investigation to broaden our understanding of how the process of knowledge transformation occurs in interprofessional settings (Mørk et al., 2008; Oborn & Dawson, 2010; Pyrko et al., 2017; Tagliaventi & Mattarelli, 2013; Tasselli, 2015; Tsoukas & Mylonopoulos, 2004). In doing so, I provide accounts of the microlevel interactions between professionals during the four identified stages of knowledge transformation. I thereby also answer the calls raised by Edmondson and Harvey (2018) concerning the need for an integrative model in an interprofessional setting.

While previous studies have tended to portray knowledge transformation as a static linear progression (Gabbay et al., 2020) or cyclical process (Carlile & Rebentisch, 2003), my findings suggest that knowledge transformation occurs in a four-stage dynamic process. In particular, my findings show that the contradicting and contending stages incur strong knowledge boundaries, which arise from a conflicting and tense collaboration climate. These findings are in line with those of the previous studies (Arndt et al., 2009; Delva et al., 2008; Edmondson & Nembhard, 2009; Kvarnstrom, 2008;

Mariano, 1999; Suter et al., 2009), yet they contribute to a more nuanced description by showing how these boundaries are overcome in the converging and cultivating stages.

Second, I extend the literature on boundary work by explicating two distinct boundary-crossing activities that are central in overcoming knowledge boundaries (thus enhancing boundary permeability). Team reflexivity is central in addressing contradictions and professional differences. While this finding is supported by extant studies (Bruns, 2013; Carlile & Rebentisch, 2003; Faraj & Xiao, 2006; Gabbay et al., 2020; Majchrzak et al., 2012; Schmickl & Kieser, 2008; Tsoukas, 2009), I show how such engagement is beneficial to converging knowing in practice.

Furthermore, I expand the adjacent literature pertaining to the translation of knowing in practice in and across communities of practice (Cartel et al., 2019; Contu, 2014; Kellogg, 2009; Kellogg et al., 2006; Pyrko et al., 2017) by illuminating how reciprocal observations during joint consultation enable insight into tacit competence and professional difference. I underscore that, to reach the cultivating stage, a hybrid version of team reflexivity and joint consultation is necessary. Hence, I answer the calls to identify practices that require a combination of traverse and transcendence views to cross knowledge boundaries (Bresman, 2013; Majchrzak et al., 2012; Tagliaventi & Mattarelli, 2013; Vashdi et al., 2013).

Third, I answer recent calls for considering the boundary strategies used by interprofessional teams (Faraj & Yan, 2009; Langley et al., 2019; Liberati, 2017; Liberati et al., 2016; Martin et al., 2009; Nancarrow & Borthwick, 2005; Powell et al., 2018). In doing so, I draw upon and extend the literature on boundary work by introducing three boundary strategies (guarding, arbitrating, and rebelling). Guarding instigates boundary demarcation to protect autonomy and control roles, resembling previous findings (e.g., Burri, 2008; Carmel, 2006; Evans & Scarborough, 2014; Faraj & Yan, 2009; Gieryn,

1983; Langley et al., 2019). In contrast, rebelling depersonalizes knowledge claims and resolves boundaries. While guarding and rebelling have some resemblance to the terms competitive and collaborative boundaries depicted by Langley (2019) and Nugus (2010), rebelling, in this study, is viewed as the most advanced form of boundary work, as opposed to the configurational boundary work depicted by Langley (2019). Rather, I find that boundary arbitrating has some resemblance to configurational boundary work. Hence, arbitrating enables selective permeability by upholding some boundaries while yielding others, which extends the findings by Kislov (2018).

Moreover, my findings highlight variations in professionals' use of boundary strategies. Physicians, gastroenterologists in particular, guard and demarcate boundaries in the early stages of teamwork. Hence, they encroach the territory of professional counterparts and ignore claims of lower-status professionals. This resonates with the findings of previous studies (Battilana, 2011; Bucher & Langley, 2016; Comeau-Vallée & Langley, 2020; Ferlie et al., 2005; Lloyd et al., 2011; Lockett et al., 2014; Martin et al., 2009; Nancarrow & Borthwick, 2005; Norris, 2001; Powell & Davies, 2012; Salhani & Coulter, 2009). In contrast, psychologists tend to arbitrage (selective diffusion of boundaries) by gently pushing and proclaiming exclusive expertise, while physiotherapists rebel (challenge boundaries). Thus, my findings support the fact that tactics differ depending on the centrality to the contested issue (e.g., Bucher & Langley, 2016; Lefsrud & Meyer, 2012) and on the positioning (Helfen, 2015; Huising, 2014; Suddaby & Greenwood, 2005).

More importantly, my findings show that to achieve cultivating, rebelling strategies are eventually employed across professions. The changes observed in physicians' tactics, from guarding to rebelling, are particularly significant. While extant studies have shown that lower-status professionals tend to become marginalized during

interprofessional teamwork (Finn et al., 2010; Martin et al., 2009; Oborn & Dawson, 2010), I find that lower-status professions gain power and authority progressively throughout the teamwork. Surprisingly, these findings suggest that the loss of power, autonomy, and privileged roles of physicians is not framed as a loss during the cultivating stage. Rather, gastroenterologists, who have particularly been strong advocates of demarcation, fight to downplay boundaries, as they realize the benefit of learning new skills to improve patient care.

Finally, this study illuminates the dynamic interplay of boundaries, which tends to be overlooked (Dey & Ganesh, 2017; Kislov, 2014; Kislov et al., 2021; Reay et al., 2017). Rather than assuming static and deterministic modes of boundary work, I illuminate the dynamic interplay between boundary strategies and show their influence on boundary permeability. Explicitly, I show the implications of boundary strategies for the stages of knowledge transformation (declined, stabilized, or accelerated movement between the stages). I find no indication for the potential skipping of stages in the process of knowledge transformation, yet observe backward and forward movement according to the boundary strategies employed. Critical events contribute to a switch in boundary strategies. My findings concur with the suggestions offered by Langley et al. (2019), Lindberg (2017), and Mørk et al. (2012) pertaining to how practice drives and constitutes changes in boundaries, suggesting that boundary work can be stabilized but never completed. While arbitrating tactics enable temporary stabilization in the stage of knowledge transformation, rebelling or guarding destabilizes the current state.

### *Practical Implications*

These findings have important practical implications. Bridging gaps in knowing, in practice, is a complex endeavor of intense boundary work. While specialization and professionalization yield several benefits, uniprofessional work patterns create substantial

barriers to effectively translate knowing in practice across professions and disciplines. Therefore, to reduce silos and tribalism among professionals, team members, managers, and policy makers should provide interprofessional education and team-based training.

In addition, shadowing professional counterparts or placements at different departments can provide valuable lessons that yield important insight, respect, and recognition of professional counterparts. In addition, facilitating exercises in perspective making (Boland & Tenkasi, 1995) and role play might yield valuable arenas to cultivate values of respect, equality, and back-up behavior in the organization. This promotes the emergence of rebelling tactics, which this study has shown is crucial to sustaining collaboration. In addition, incentives that emphasize interprofessional competence in the form of salary raise or new titles that reflect the advancement in interprofessional expertise can be beneficial to nurturing boundary rebelling.

Moreover, organizations should be mindful regarding the differences in displayed strategies between specialists. While higher-status specialties are inclined to guard boundaries, lower-status professionals might rebel to challenge boundaries. I underscore that reaching the cultivating stage requires ongoing boundary work, which, along the way, might be energy intensive. This might elevate emotions as teams transcend rigid knowledge boundaries. This is particularly prevalent in the contending stage. However, despite the tough and tense climate it might induce, contending is considered a necessary and crucial state in the process of knowledge transformation. Rather, efforts should aim to enhance the speed of movement into the converging stage by enabling arenas to engage in boundary-crossing activities, such as joint consultations and team reflexivity. To reach the cultivating stage, however, teams and organizations should be aware of the necessity for a hybrid version of joint consultations and team reflexivity, as suggested by my findings. Healthcare, in particular, tends to be highly reliant on clinical guidelines.

Implementing protocols that implement joint consultations and team reflexivity might benefit clinical care.

*Limitations and Future Research*

This study has some limitations. First, this sample was collected at a single site encompassing nine professionals, who were distributed across eight unique team compilations. This limits the generalizability of the findings. Second, a potential bias relates to volunteer engagement in teamwork, which often contradicts the mandatory compliance initiated by hospital management. Third, causal claims cannot be made from this ethnography.

In light of these contributions, this study offers interesting avenues for future research. Future work can meaningfully extend my arguments to scenarios in different contexts, such as collaborations between different units, organizations, or countries, both within and outside healthcare. Furthermore, future investigations might inquire into alternative mechanisms of boundary-crossing activities in interprofessional teams, as well as tap into the mechanisms that shape boundary strategies. For instance, this study showed that the agency of patients plays an important role in switching boundary strategies from rebelling to guarding. Future research should explore how patients influence the interplay of boundary strategies in interprofessional teams, as well as consider other mechanisms that cultivate a boundary-rebelling strategy.

Finally, my findings show that the status differences of professionals change over the course of teamwork, where higher-status professionals yield claims to power and status without framing it as a loss. An interesting avenue is to explore this area further.

## Conclusion

Knowledge transformation is a daunting endeavor in which many interprofessional teams fail to surmount the challenges of crossing knowledge boundaries. The institutionalized context of healthcare represents substantial rigid boundaries, which present obstacles to collaboration between specialties of disparate power and authority. This ethnographic study sheds new light on the temporal interplay among boundary strategies (guarding, arbitrating, and rebelling) and how these strategies influence the dynamic process of knowledge transformation. The model of knowledge transformation shows how teams move between different stages (contradicting, contending, converting, and cultivating) in the process of translating knowing in practice across professions.

Knowledge transformation is a maturity process that requires ongoing boundary work to enable the shared understanding, appreciation, and exploitation of complementary knowledge bases. This study shows that professionals display various boundary strategies that boost (rebelling), stabilize (arbitrating), or decline (guarding) knowledge transformation phases. Recognition, trust, and back-up nurtures are nurtured during boundary-crossing activities (joint consultations and team reflexivity), which in combination facilitate boundary rebelling. Accordingly, boundary rebelling helps interprofessional teams reach the cultivating phase, in which teams accomplish knowledge transformation. Thus, I show that interprofessional collaboration can be sustained through professionals' display of rebelling strategies.

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# Appendix A: Data Displays

**Figure A1.** Contradicting

**Empirical Observations/quotes** | **First-order codes** | **Second Order Codes** | **Aggregate Dimensions**

PS: We have such different terminology and means of practice. The distance between us is simply overwhelming
PT: We lack knowledge of each other's competence. Our «back packs» are too different.
PS: We like to do things differently and fail to yield preferences to conjoin practices.

→ Lack common lexicon

PT: We have no idea on how to behave or act towards one another in this setting.
PS: There is so much confusion and insecurity. I fear to intervene in situations where I should.
MD: It is all tangled up. We feel so insecure of our responsibilities, avoiding addressing our concerns to act politely towards each other.
  • Goal ambiguity

→ Role uncertainty

PS: We are not used to receiving nor initiating critical feedback.
PT: We do not provide feedback in the hospital culture. We have no formal means of evaluation.
MD: If a carpenter puts up a wall and the wall is straight, you don't tell them what a nice wall it is. You complement an amateur, never a professional…. We are expected to provide a professional evaluation, and don't demand or expect feedback from each other afterwards. That is not our way….

→ Absent feedback

**Strong Syntactic Knowledge Boundary**

PS: It is hard to know what to share because we lack an understanding of what is perceived relevant to our team members.
PS: I often feel that my team members perceive my questions as vague, less scientific and time consuming.
MD: Our ways of questioning patients is very different, and when we share information we tend to pay attention to different things.

→ Pipeline interpretation & common knowledge focus (information block)

  • Teams take turns questioning the patient (sequential)
  • Individual experiences serve as reference point for perspective integration
  • Unequal participation despite collective task obligation
  • Share information elicited in separate consultaitons and focus on information that all members are familiar with.

→ Sequential coordination

PT: Our routines vary, and we lack common protocols for coordination
PS: Somatic concerns are given the highest priority, leaving less emphasis on mental concerns.

→ Unclear/ambiguous dependencies

**Strong Semantic Knowledge Boundary**

MD: The physicians' decisions should be placed most weight – it is only natural.
PS: We are all imprinted with the chain of command at the hospital
PS: I felt that the dialogue was somewhat challenging. You behave as you would normally, but I am used to doing things differently and these contradictions ends up complicating everything.
PS: I never trespass onto someone's domain. That would be unprofessional. I think our boundaries are clear cut. It is like we are standing on either side of a fence, no one dares to cross over because you know that you have no business intervening on their property.

→ Preserving hierarchies & boundaries

  • Lack understanding of the competence and values of professional counterparts.
  • Personalized knowledge claims

→ Confounding learning environment

PS: Dialogue is challenging. You behave as you would normally, but our contradictions ends up complicating everything. I have resorted to mind my own business to make peace….
MD: I fear I might have upset my team members, but I have refrained from bringing up the issue. I fear voicing my opinions may be experienced as critique.

→ Conflict avoidance

**Strong Pragmatic Knowledge Boundary**

⟶ **Contradicting**

**Figure A2.** Contending

**Figure A3.** Converging

**Empirical Observations/quotes**

- Increasing member familiarity with each others knowledge bases
- MD: I was told that I was taking up too much space in the consultation, and that the others didn't find my questions relevant. It made me aware that they lack an understanding of my discipline. However, bringing it up provided an opportunity to discuss our differences.
- MD: I have more in common with the psychologist, so there is more overlap amongst us.

- MD: It's takes courage to open yourself up and expose your weaknesses, but a necessity to move forward as a team.
- PT: Our tone of voice in team conversations has changed. We are not so tense anymore.
- Medium respect of professional counterparts gained through impressive performance experiences, medium peer support/back-up behaviour, goal clarity.

- Medium peer support (help- and feedback seeking behaviour on tasks-related aspects)
- MD: Daring to put yourself "out there" and become vulnerable for critique is hard. You risk hurting someone, but it is a necessary deed.
- PT: It is better to provide negative feedback and allow for opportunities to change as a team, rather than offering negative criticism to just one team member. It lifts an issue to a high, less personalized level when we address it as a team opposed to as individuals.
- MD: We have no culture for playing the "devils attorney". People tend to take things personally, so we focus most on the patients issues rather then teamwork.

- Sharing unique information without sense of entitlement or fear of judgement
- PS: Insight into others interpretation allows trust and opens and invites pursuits above what seems obvious.
- MD: We present our views around the table to form a shared understanding, as we are prone to focus our own perspectives. We would not have been where we are today without feedback.
- Teams reflect on how challenges affect team members' practice & information sharing, attempting to adapt to adapt to find common ground

- Semi-sequential questioning/join assessments or use of team reflexivity
- Individual experiences serve as reference point for perspective integration
- Focus on adaptation to the specific case/patient situation (sequential or joint consults)

PT: We negotiate responsibilities and roles. We try to come to an agreement that is respectful and attentive to others needs.

- Adjusting/accommodating to situational overstepping of knowledge domains
- Alterations in leadership (high & medium status professions) – uneven status participation
- Delegation and blurring of task responsibility
- Shielding and yielding claims to autonomy
- PS: Instead of fearing that we shed bad light on our team members for interfering, we are becoming more courageous to overstep boundaries.

- Reciprocity in knowledge sharing, but personalization of certain knowledge claims.
- Focus on learning from a specific case

- Reaffirm and expand boundaries in diverse areas
- PT: I know my place. There are some situations we have agreed that may be overstepped, while others will be handled by specific discipline.
- MD: I mind the diverse interests and needs of my team members.

**First-order codes**

- Complementariness & familiarity of knowledge bases
- Vulnerability
- Feedback seeking behaviour
- Cyclical Interpretation
- Reciprocal coordination
- Negotiating dependencies
- Flexible adherence to professional domains/hierarchies
- Cultural adjustment/ Supportive learning environment
- Manipulative interactions – Collaborative and competition

**Second Order Codes**

- Weak Syntactic Knowledge Boundary
- Weak Semantic Knowledge Boundary
- Strong Pragmatic Knowledge Boundary
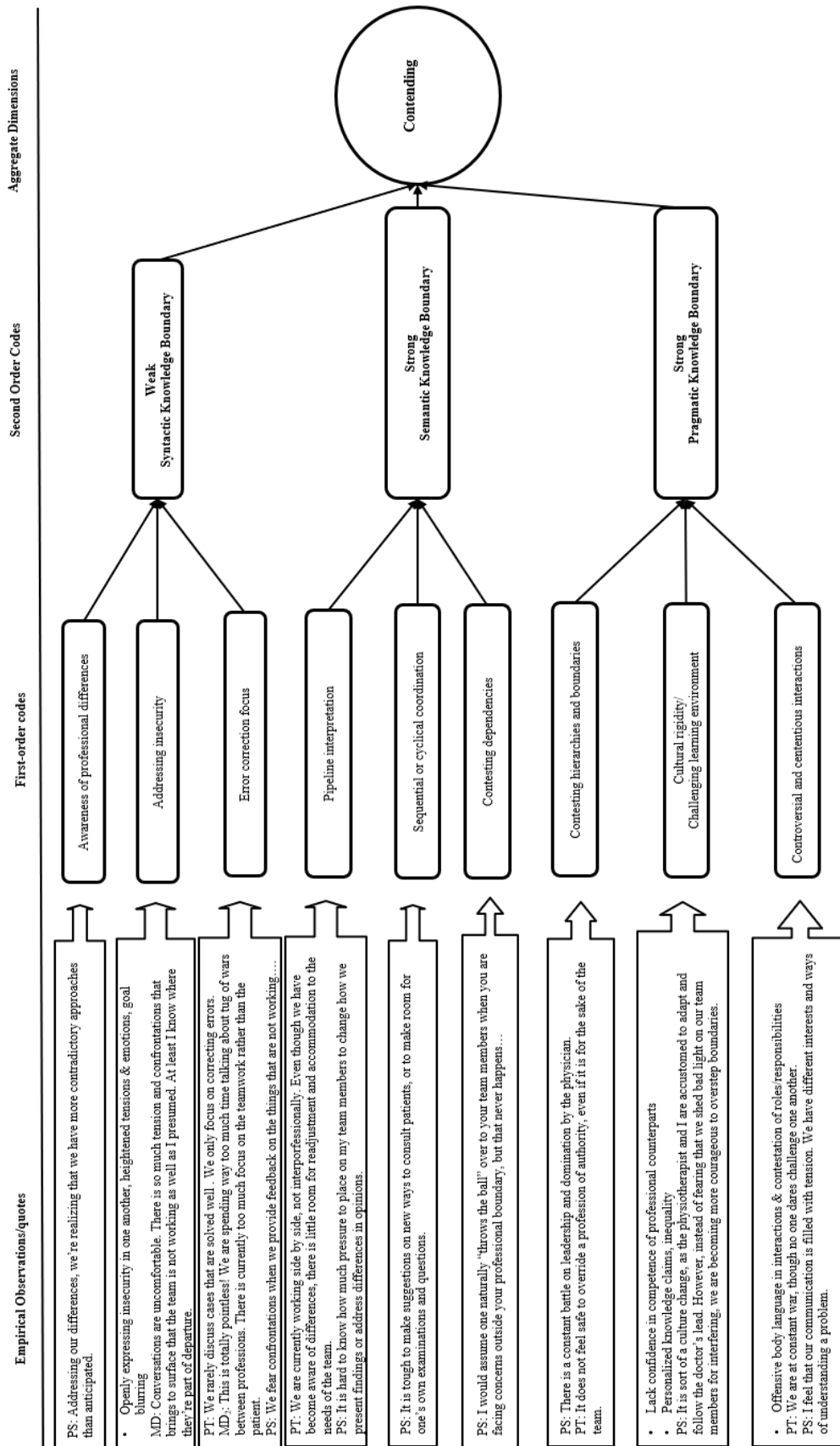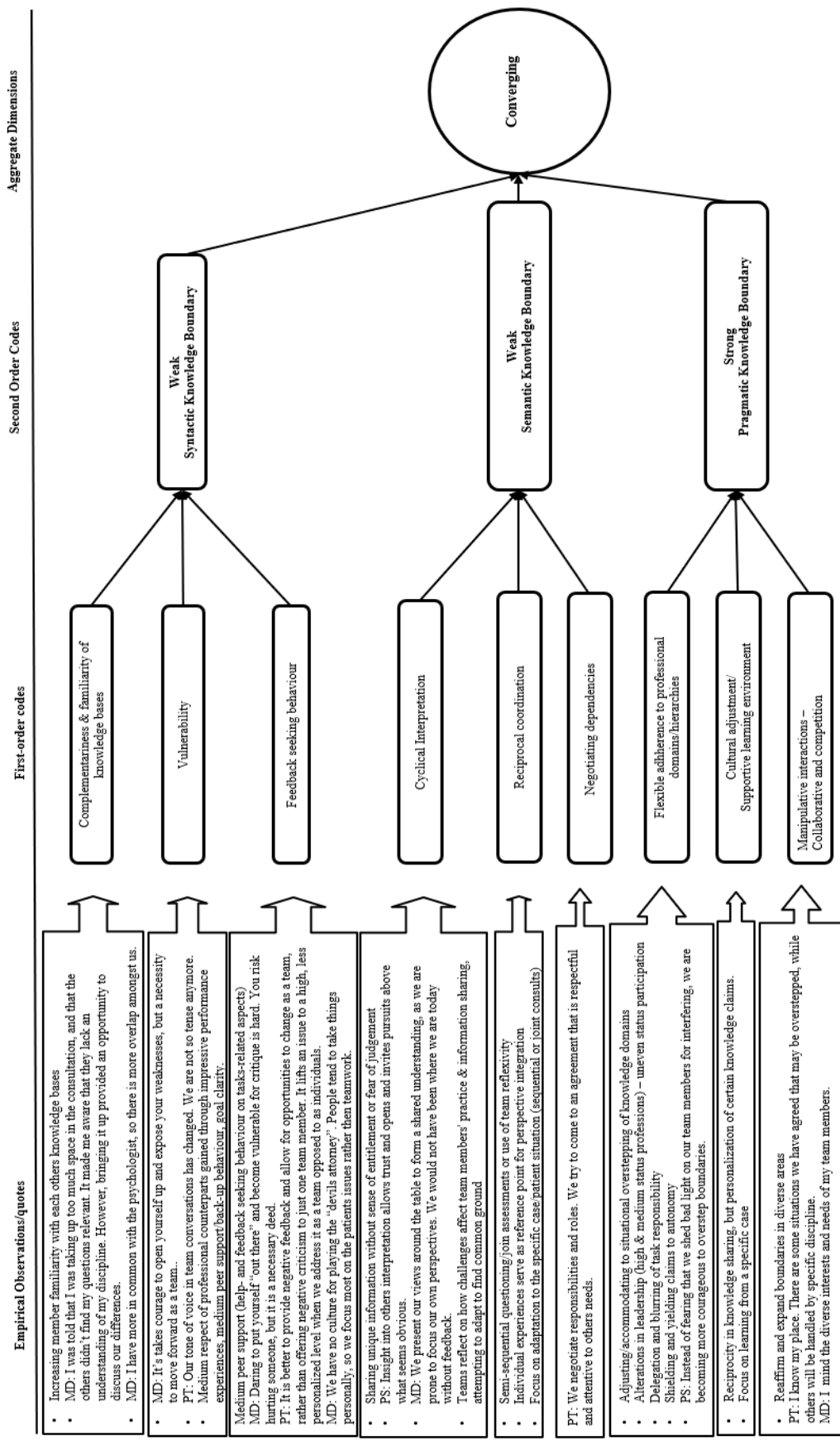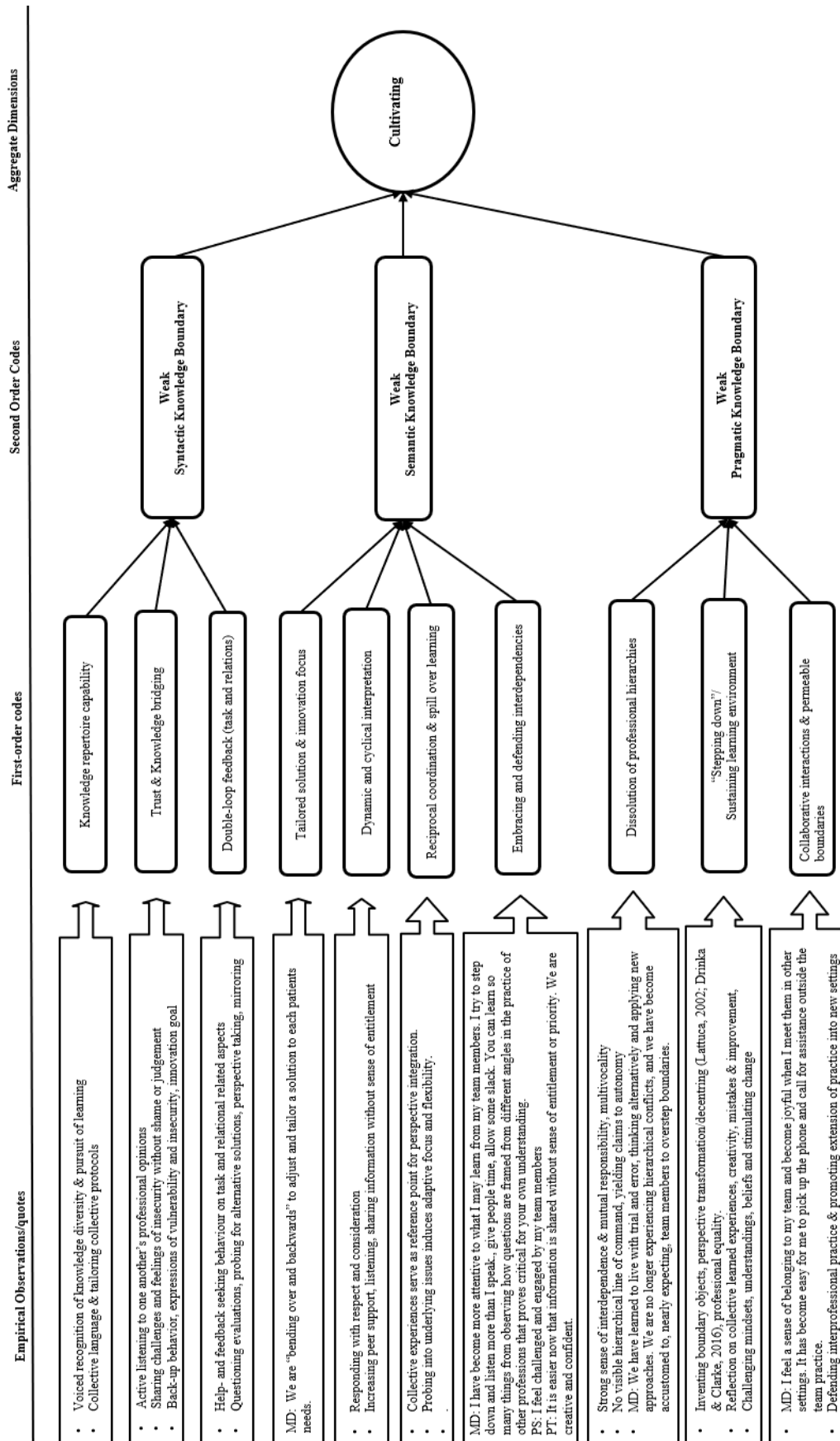
**Aggregate Dimensions**

- Converging

**Figure A4.** Cultivating

# Appendix B: Boundary Strategies

**Table B1.** Characteristics of Boundary Strategies

| Characteristics of Teams' Boundary Strategies | Boundary Guarding | Boundary Arbitrating | Boundary Rebelling |
|---|---|---|---|
| Adherence to knowledge domains | Rigid adherence | Semi-flexible | Flexible |
| View of professional counterpart | Stereotyping | Respect and insight | Mutual admiration, respect, and cross-competence |
| Taskwork | Separately & sequential sequentially. | Task blurring – separating and integrating | Adaptation, overlap |
| Insight into knowledge of team members | Lack willingness to explore competence of professional counterparts | Insight into who knows what and understanding of the practice of professional counterparts | Advanced knowledge repertoire |
| Confidence in knowledge of team members | Lack confidence | Medium confidence | High confidence |
| Knowledge claim | Personalization and defense of knowledge claims/need for professional uniqueness | Personalization of some knowledge claims and depersonalization of others | Depersonalization of knowledge claims |
| Jurisdictional overstep | Avoid violating jurisdictions/overstepping knowledge domains | Adjusting/accommodating to situational overstepping of knowledge claims | Encourage jurisdictional overstepping to knowledge domains of professional counterparts |
| Leadership | Domination of tasks (physicians) and leadership | Blurring of tasks and alterations in leadership | Case adaptations defer dominance in conversation, adaptive leadership |
| Autonomy | Shielding autonomy | Shielding and yielding autonomy | Yielding autonomy |
| Aim/goal | Knowledge complementation | Knowledge integration | Knowledge transformation |
| Boundaries | Defending/protecting established boundaries | Reaffirming and expanding boundaries concurrently in different areas. | View permeable boundaries as opportunities to examine own perceptions in new light & opportunities for advancement in competence |
| Information Sharing | Common method bias (hidden profiles) – Focus on information that is shared. Somatic perspectives dominate. | Selective information sharing. Focus on shared information. | Shared information, focus on unique information, reflexive interpretation |
| Response to threats in knowledge domains | Perceiving threats to knowledge domain and status. | Accommodating and protecting rights to knowledge domains and status. | Embracing threats to knowledge domain as opportunities for change, low perceptions of threats to status. Recognizing value of others |
| Interactions | Shallow interaction | Adaptive interaction | Intense interaction |
| Hierarchies | Hierarchies & power differences | Challenging hierarchies, consensus driven | Dissolving hierarchies, shared decision-making Creativity/innovation-driven |
| Coordination | Sequential questioning/examinations | Semi-sequential questioning/examinations | Simultaneous, reciprocal questioning/examinations |

# Appendix C: Boundary Work

## Table C1. Contradicting

| Boundary Work in Contradicting Stage | | | |
|---|---|---|---|
| *Characteristics* | *Physicians (Gastro/Neuro)* | *Psychologists* | *Physiotherapist* |
| Centrality in patient care | Central caregiver | Peripheral caregiver | Peripheral caregiver |
| Symbolic system (status) | Hierarchical (superior) status, centralized power system | Middle status | Lower status[11] |
| Roles and responsibilities | Somatic evaluation, diagnosis, medical treatment | Psychological evaluation (psychometric testing) & psychotherapy | Psychomotor skill evaluation, motor skills training |
| Orientation and diversity in pace | Task- and efficiency-oriented (time-conscious), rigidity in methods, quick decision-making, improvisation | Relationship-oriented, allow time to process changes and understand how events trigger physical symptoms, slow decision-making | Relationship-oriented, flexible, and accommodating, progressive decision-making. |
| Temporal structuring | Time-strain, multi-tasking, taking on-calls, impatient. Focus on the present. | Awareness of mindful-oriented, one patient at a time, time focus on past and present, slow. | Muti-tasking, focus on present and future. Medium slow in tempo. |
| Interruptions | Frequent disruptions, impatient, showing up late due to time sensitive issues elsewhere (multi-tasking), limited afterwork. | Always prepared, limited disruptions, much afterwork. | Limited afterwork, always prepared, few interruptions. |
| Focus | Dominant somatic focus | Dominant mental focus, focus on scientific methods that help to test theories. | Psycho-somatic focus (motor skills) |
| Knowledge base | Highly codified, abstract, and scientific knowledge base, acquired through extensive educational training and practice. Generates and test hypotheses for correct diagnoses under time pressure. | Abstract, relational based knowledge base acquired through extensive educational training and practice. Substantial expertise regarding case conceptualization. | Scientific knowledge base acquired through medium educational training and extensive practice. Mental and somatic oriented, relational based practice. |
| Approach | Checklist, "shot-gun approach" | "Soft-approach", open, explorative. | Multi-tasking physician and mental exploration. |
| Normative standards | Adherence to required and explicit behavioral and social norms (Brint, 1994) | Adherence to social norms and behavioral professional standards. | Adherence to professional standards. Adherence to social norms. |
| Uniforms | White coat – formal dressing | Civilian dressing | Occasionally wears uniform |
| Common practice for eliciting patient information | Asking direct (often closed questions) in semi-structured specific order. Either convey information around a table (chair to chair) or over an examination bed. | Asking open questions, trust building relationship. Flexible, time demanding questions, hair to chair conversation. | Asking questions and evaluating symptoms and function using exercises. A playful environment with exercises and dialogue. |
| Examinations | Testing motor skills, bowel functions, neurological function, reflexes, senses etc. | Speech and mental assessment | Testing motor skills, breathing patterns, writing and speech assessment |
| Professional identity | Strong identification with profession. | Medium identification with profession. | Medium to low levels of identification with profession. |
| Leadership | Often assume leadership position due to their hierarchical position. Used to "give orders". | Rarely assume leadership positions. Work independently and on the sideline of somatic professions. | Rarely assume leadership positions. Works independently, but have frequent interaction working on alongside physicians and psychologists. |
| Practical differences | Frequent note taking during consultation (patient journal completed during consultation). | Patient journal is documented after consultation. Only few handwritten notes are taken during consultation. | Patient journal is documented after consultation. Only few handwritten notes are taken during consultation. |

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[11] Status hierarchies have institutionalized roots based on the historical emergence and recognition of diverse expertise and the capacity of established professionals to maintain and enhance their resources over time (Abbott, 1988; Freidson, 2001b). Physicians occupy the apex of the hierarchy (Lockett et al., 2014).

**Table C2.** Contending

| Boundary Work in Contending Stage | | | |
|---|---|---|---|
| *Characteristics* | *Physicians* | *Psychologists* | *Physiotherapist* |
| Adherence to professional domain | Rigid adherence to professional domain | Rigidity adherence to professional domain | Rigidity adherence to professional domain |
| Knowledge claims (personalized vs depersonalized) | Personalization and defense of knowledge claims (resist expansion/stability of scope of practice of professional counterparts). | Depersonalization of knowledge claims (open to expansion of the scope of practice of professional counterparts). | Depersonalization of knowledge claims (open to expansion of the scope of practice of professional counterparts). |
| Overstepping disciplinary domains | Violating jurisdictions/overstepping knowledge domains. | Avoid violating jurisdictions/ overstepping knowledge domains. | Avoid violating jurisdictions/ overstepping knowledge domains. |
| Coordination | Lack of functional coordination/ integration (separate examinations followed by team meeting where information is shared). | Lack of functional coordination/integration (separate examinations followed by team meeting where information is shared). | Lack of functional coordination/ integration (separate examinations followed by team meeting where information is shared). |
| Authority | Taken-for-granted assumptions of superiority in decision-making. | Challenge hierarchies, hospital culture, and norms by framing them as collaborative "needs" | Challenge hierarchies, hospital culture, and norms by framing them as collaborative "needs" |
| Interactions | Shallow interaction | Strive to enhance interaction | "Laying low"/sidelined |
| Accountability | Perceived jurisdictional accountability | Perceived shared accountability | Perceived shared accountability |
| Knowledge repertoire | Perceptions of threats to knowledge domain and status | Perceptions of ability to extend and advance knowledge claims | Perceptions of ability to extend and advance knowledge claims |
| Confidence | Lack of confidence in the competence of professional counterparts | High respect for physicians, low self-confidence | Medium self-confidence |
| Leadership | Claim rights to leadership (authoritative) | Challenge right to leadership, defend alteration of leadership | Submissive to physician's leadership |
| Hierarchies | Defend hierarchies | Challenge hierarchies (attempts to gain more power, push for equality) | Challenge hierarchies (attempts to gain more power, push for equality) |
| Conversation voice | Physicians dominate conversations | Medium influence in conversations | Low influence in conversations |
| Adaptation | Authority of patient summary letters (downplay/edits team members findings) | Sends own patient summary letters (in lack of confrontation). | Submissive to physician's authority over patient summary letters. |
| Feedback | Lack of feedback | Convey task feedback | Hesitant information sharing |
| Psychological safety | Low psychological safety | Low psychological safety | Low psychological safety |
| Equality | Demarcations | Yielding behavior | Submissive behavior |
| Goal | Goal ambiguity | Goal ambiguity | Goal ambiguity |
| Autonomy | Shielding autonomy | Downplaying autonomy | Downplaying autonomy |
| Boundary permeability | Reaffirm established boundaries. (uphold power balance) | Attempting to extend some boundaries while preserving other boundaries | Attempting to extend boundaries |

**Table C3.** Converging

| Boundary Work in Converging Stage | | | |
|---|---|---|---|
| *Characteristics* | *Physicians* | *Psychologists* | *Physiotherapist* |
| Adherence to professional domain | Rigid adherence to professional domain | Medium adherence to professional domain | Medium adherence to professional domain |
| Knowledge claims (personalized vs depersonalized) | Personalization of certain knowledge claims and depersonalization of other areas. | Personalization of certain knowledge claims and depersonalization of other areas. | Depersonalization of knowledge claims (open to expansion of the scope of practice of professional counterparts). |
| Overstepping disciplinary domains | Overstepping disciplinary domains | Flexibly overstepping professional domains. | Avoiding overstepping professional domains. |
| Coordination | Semi-flexible coordination | Semi-flexible coordination | Adaptive coordination |
| Authority | Negotiating authority, rigid adherence | Challenging hierarchies | Challenging hierarchies |
| Interactions | Dependent interaction | Dependent interaction | Dependent interaction |
| Accountability | Dependent accountability | Perceived shared accountability | Perceived shared accountability |
| Knowledge repertoire | Exploring competence of professional counterparts | Exploring competence of professional counterparts | Exploring competence of professional counterparts |
| Confidence | Medium confidence | Medium confidence | Low confidence |
| Leadership | Alternating leadership | Adaptive leadership | Alternating leadership |
| Hierarchies | Negotiating hierarchies | Negotiating hierarchies | Negotiating hierarchies |
| Conversation voice | Dominate conversations | Promoting multivocality | Medium influence in conversations |
| Adaptation | Adaptive roles | Adaptive roles | Adaptive roles |
| Feedback | Providing feedback | Providing feedback | Providing feedback |
| Psychological safety | Low psychological safety | Medium psychological safety | Low psychological safety |
| Equality | Defending inequality | Demanding equality | Demanding equality & respect |
| Goal | Mutual goal tailoring | Mutual goal tailoring | Mutual goal tailoring |
| | Clinging to autonomy | Yielding autonomy | Yielding autonomy |
| | Allowing selective boundary permeability | Promoting selective boundary permeability | Promoting full boundary permeability |

**Table C4.** Cultivating

| Boundary Work in Cultivating Stage | | | |
|---|---|---|---|
| *Characteristics* | *Physicians* | *Psychologists* | *Physiotherapist* |
| Adherence to professional domain | Low adherence to professional domains | Low adherence to professional domains | Low adherence to professional domains |
| Knowledge claims (personalized vs. depersonalized) | Depersonalization of knowledge claims (open to expansion of the scope of practice of professional counterparts). | Depersonalization of knowledge claims (open to expansion of the scope of practice of professional counterparts). | Depersonalization of knowledge claims (open to expansion of the scope of practice of professional counterparts). |
| Overstepping disciplinary domains | Overstepping disciplinary domains | Flexibly overstepping professional domains | Flexibly overstepping professional domains |
| Coordination | Improvised coordination | Improvised coordination | Improvised coordination |
| Authority | Reduced authority (deter somatic causes), stepping down | The central care giver, enhanced authority. | Central caregiver – perceived as the "glue" between somatic and mental professions. |
| Interactions | Strive to enhance interaction | Strive to enhance interaction | Strive to enhance interaction |
| Accountability | Perceived shared accountability | Perceived shared accountability | Perceived shared accountability |
| Knowledge repertoire | Extended & advanced knowledge repertoire | Extended & advanced knowledge repertoire | Extended & advanced knowledge repertoire |
| Confidence | High confidence | High confidence | High confidence |
| Leadership | Adaptive leadership | Adaptive leadership | Adaptive leadership |
| Hierarchies | Conquering hierarchies | Conquering hierarchies | Conquering hierarchies |
| Conversation voice | Multivocality | Multivocality | Multivocality |
| Adaptation | Adaptive | Adaptive | Adaptive |
| Feedback | Requesting & providing feedback | Requesting & providing feedback | Requesting & providing feedback |
| Psychological safety | High psychological safety | High psychological safety | High psychological safety |
| Equality | Equality | Equality | Equality |
| Goal | Mutual goal tailoring | Mutual goal tailoring | Mutual goal tailoring |
| Autonomy | Yielding autonomy | Yielding autonomy | Yielding autonomy |
| Boundary permeability | Enhance boundary permeability | Enhance boundary permeability | Enhance boundary permeability |