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# UNDERSTANDING COMMUNITIES OF PRACTICE: TAKING STOCK AND MOVING FORWARD

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## ABSTRACT

This paper provides a comprehensive, integrative conceptual review of work on communities of practice (CoPs), defined broadly as groups of people bound together by a common activity, shared expertise, a passion for a joint enterprise, and a desire to learn or improve their practice. We identify three divergent views on the intended purposes and expected effects of CoPs: as mechanisms for fostering learning and knowledge-sharing, as sources of innovation, and as mechanisms to defend interests and perpetuate control over expertise domains. We use these different lenses to make sense of the ways CoPs are conceptualized and to review scholarly work on this topic. We argue that current debate on the future of work and new methodological developments are challenging the received wisdom on CoPs and offer research opportunities and new conceptual combinations. We argue also that the interaction between the lenses and between CoP theory and adjacent literatures might result in new theory and conceptualizations.

## 1   INTRODUCTION

Communities of practice (CoPs) are defined as groups of people informally bound together by shared expertise and passion for a joint enterprise, who interact regularly to learn about or improve their practice. Lave and Wenger (1991) originally proposed the concept of CoPs to

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support the idea that learning at work consists of increasing competent participation in social practice and the associated construction of identity. The concept was adopted by management and organization (MO) scholars who used it to explain the social nature of knowledge in organizations, how knowledge is shared and perpetuated over time, and how newcomers learn "the tricks of the trade". The concept was adopted also by other fields, and a search of the Scopus database using the term "community of practice" identifies over 8,000 (8,094 in January 2022) articles and book chapters. These works cover fields as disparate as social sciences and education, arts and the humanities, health care, computer science, and agricultural sciences.

However, the concept of CoPs was also controversial. In the early 2000s, a sharp separation developed between an academic-oriented (Easterby-Smith et al., 2000) and prescriptive (Wenger et al., 2002) approaches. Consultants and managers embraced the idea and considered it to be a knowledge management tool and means to foster knowledge sharing and collective learning (Gratton & Erickson, 2007; Hess et al., 2002; Wenger et al., 2002). In contrast, following an initial period of intense empirical work and critique, management academics and especially (MO) scholars who had been among the most active early adopters (1,291 publications since 1991) mostly abandoned the idea. In the mid-2000s, following heated theoretical debates on the nature, function, and managerial use of CoPs, the conversation was moved to practice-oriented outlets. Scholarly debates shifted their focus on new or adjacent topics, such as online communities (McLure Wasko & Faraj, 2005), occupational communities (Abbott, 1988; Anteby et al., 2016), knowledge boundaries (Carlile, 2002, 2004; Levina & Vaast, 2005), and boundary work (Langley et al., 2019). While the number of studies addressing CoPs remained steady, further theoretical elaboration was limited, and the focus turned to evaluating and supporting the work of practitioners. The clearest evidence of this change of direction is the lack of papers published in top MO studies

journals. Despite wide diffusion of the idea of CoPs, the MO literature includes relatively few reviews of CoPs and only a handful of critical analyses of its evolution and take-up. We aim in this paper to address this gap and provide a comprehensive integrative review of the work on CoPs to try to reinvigorate the debate on CoPs.

Our synthesis of work on CoPs since 1990 suggests that historically the study of CoPs was approached differently, depending on researchers' assumptions about their function, purpose, and expected effects. These divergent views acted as theoretical lenses, which worked to magnify certain aspects and background others. Some authors understand CoPs mainly as mechanisms to facilitate learning and knowledge sharing within and across organizations; others looked at how CoPs could support and foster innovation and create value, and defend the interests of and perpetuate control over domains of expertise. The three lenses of "learning", "innovating", and "defending" are used to explain the fragmented nature of the debate and the emergence of three mostly disconnected bodies of work. The co-existence of multiple views, and the resulting lack of clarity regarding the definition of the concept of CoPs, explains the reluctance of some scholars to engage with the topic and the diminished interest for CoPs research in the recent literature.

We would suggest that a promising way to reinvigorate the scholarly conversation on CoPs is a better linking of the three streams of research on CoPs. Promising generative conversations can also be triggered by establishing connections between the study of CoPs and mainstream MO scholarship. The notion of CoPs emerged and was developed mostly by those outside of the traditional MO community. Work on CoPs would benefit from engagement with and inclusion in research on adjacent topics such as occupational communities, networks, and work identity.

We believe that restarting the conversation is both timely and important. For instance, developments related to the nature of work and employment in post-industrial organizations

and the emergence of new MO research methodologies could be exploited to study how CoPs and their underlying mechanisms change with their changing boundary conditions, e.g., the emergence of online and hybrid working.  A renewed focus on CoPs is also important as the concept still offers a parsimonious social account of the connections between expert knowledge, social organization, their perpetuation in time, and the emergence of novelty. Despite the fact that most MO research does not consider CoPs, it remains a powerful concept with practical application. CoP theory offers a single elegant framework to provide an economical and convincing explanation of the relationship among several concepts (informal learning, identity, boundaries, authority, belonging), which most work in management and organization examine in isolation. Moreover, CoPs offer a unique unit of analysis based on the mutual context of engagement and learning that offers some advantages vis-à-vis other social formations such as professional associations and occupational communities, which are famously difficult to define (see Anteby et al., 2016).

Our review is organized as follows. After an exposition of our methods and procedures in section 2, section 3 provides a short historical overview of the early development of the concept of CoPs. We show that lack of consensus over their definition led to divergent views or lenses related to their function, purpose, and expected effects. In sections 4-6, we examine the three lenses and work conducted under each of them. In each section, we discuss their underlying assumptions, the main themes covered, and what each lens highlights or leaves in the background. Section 7 discusses how to reinvigorate academic interest in CoPs through questioning the lenses, triggering a dialogue between them, and establishing a generative conversation with work in adjacent MO fields.

## 2 REVIEW SCOPE AND PROCESS

We conduct a systematized literature review to provide a comprehensive and balanced view of the state of the art in the CoP academic literature (Elsbach & van Knippenberg, 2020; Torraco, 2005). Systematized reviews are somewhat similar to systematic reviews but do not have to comply with the strict requirements and quantitative procedures required by systematic reviews (Grant & Booth, 2009). Since our aim is to analyze the theoretical development of an idea, our search includes all the scholarship on CoPs published since Lave and Wenger's (1991) seminal contribution.

Our methodology started with a search of the Scopus database using the keywords "community of practice" and its permutations. We limited our search to the fields of business, management, and accounting. To ensure a comprehensive and accurate review, we considered articles published in management journals with a 2018 Academic Journal Guide ranking 3* and higher (Cronin & George, 2020). We believe that this provides a better balance between inclusion and scholarship quality than a focus on a few prestigious journals or specialized outlets focused on learning and development in organizations (e.g., *Management Learning*, *Academy of Management Learning & Education*) or publications in specialized subfields (e.g., research policy, accounting). Our search included top practitioner-oriented journals (e.g., *Harvard Business Review*, *MIT Sloan Management Review*) and the *Journal of Knowledge Management,* a specialized journal widely cited in academia. Our search generated a list of 303 articles. After scrutinizing the titles, abstracts, and content,  we excluded 40 studies that did not focus on CoPs, although the keywords of these articles included the term CoP. We obtained a final sample of 263 articles (see table 1).

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The subsequent two-stage procedure included, first, coding the papers according to several categories which captured the characteristics of CoPs (e.g., origin, composition, life span, site, and purpose) and a final category (CoP function). We found that CoPs were described variously depending on how the function, purpose, and expected effect were conceived (i.e., whether the CoP was aimed at fostering learning/sharing knowledge and expertise, innovating, or supporting interests). Each function can be considered a different lens which spotlights some compared to other aspects. Our lenses are defined as learning, innovating, and supporting.

In the second stage, we recoded all the articles and inductively identified the themes and categories identified by each of the three lenses (Elsbach & van Knippenberg, 2020). We found that each lens highlighted a particular set of underlying mechanisms, intended outcomes, and social power dynamics (see summary in table 2).

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We tabulated the main topics using the lenses and used the diffractive reading approach proposed by Haraway, 1997). This involved reading the texts through each other to appreciate their specificities and differences, which facilitates establishing productive conversations between the lenses and generating new insights (Tsoukas, 2009). Thematic analysis based on diffractive reading showed that the most interesting opportunities for dialogue among the three approaches were related to the effort of rethinking CoPs in post-industrial organizations, examining CoPs using new methods and resources, and abandoning some preconceptions about CoPs. We use these themes to organize our discussion about how to promote more research on CoPs.

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We also used our three lenses to identify research traditions in the mainstream MOS literature that discuss topics covered by CoP studies, for example, studies of occupational communities, organizational identity, and social networks. We found that despite several overlaps and similarities in these works, interactions among these discrete scholarly communities were rare. We then highlighted the research opportunities which could arise from these interactions.

Section 3 discusses the development of CoP research and some early controversies surrounding this concept and traces the emergence of the current divisions among researchers and our proposed lenses.

## 3    MAPPING THE HISTORICAL DEVELOPMENT OF COPS: FROM DEFINITION TO CONTROVERSY AND FRAGMENTATION

In this section, we summarize the history and development of the notion of CoPs, which underpins the other parts of this review. It allows the identification of the three lenses used by different researchers to study CoPs.

The idea of CoP was introduced in 1991 as an "intuitive notion" proposed to support situated learning theory (Lave & Wenger, 1991, p. 42). It was used to emphasize the dependence of every practice on "social processes through which it is sustained and perpetuated, and that learning takes place through the engagement in that practice" (Gherardi et al., 1998, p. 279). The notion of CoPs relies on the idea that every productive social system must both accomplish its primary tasks and produce its own continuation. Situated learning refers to the way that the productive system reproduces itself. The term *community* describes where and through whom this reproduction takes place, and the term *practice* captures what keeps the system together.

While the general idea might seem straightforward, the notion of CoPs is open to multiple interpretations because it combines two polysemic and highly disputed words: *community* and *practice*. Community has proven almost impossible to define (Cohen, 2002, p. 167). The term community has been used to describe social formations which might differ substantially in terms of propinquity, level of interaction, and level shared-ness (shared values, norms, and/or identities) (Lee & Newby, 1983)). The concept of practice is also elusive. For example, Nicolini and Monteiro (2016) presents 13 definitions of practice and note that their list is not exhaustive. Consequently, early work on CoPs had to grapple with the foundational questions of what are (or are not) CoPs and who can be considered a member of a CoP.

## 3.1 Definitional issues: what are CoPs?

A first response to the question of what are CoPs is found in Lave and Wenger's (1991) work. CoPs refer to the people involved in interactional and conversational activities, exchanges of messages, sharing of stories, and efforts to jointly construct meaning which unfolds around common practical challenges and enables learning-by-working (Brown & Duguid, 1991, 2000). Both communicating and sense giving, which are essential for the completion of a common task, are sources of personal and collective learning and ways to connect with others (hence the expression "learning-in-working"). The "community" which is bound by common practical and communication efforts, perpetuates this process through enrolment and socialization of newcomers in the collective knowing (in what Thompson 2005, p. 152 describes as a "virtuous circle"). This initial understanding of CoPs as the site of mutual learning processes rather than a stable social structure is at the heart of the *learning* lens identified in our review.

Wenger's (1998) seminal work offers an alternative view. Wenger describes a CoP as a social order bound mainly by mutual identification processes centered on the same practice.

According to Wenger[1] (1998), it involves participation in common practice, understood as a joint enterprise (a mutual task or problem), mutual engagement, and a shared repertoire of words, tools, stories, symbols, and so on which provide the individuals in the community with an "experience of identity in practice [as] a way of being in the world" (Wenger, 1998, p. 51). This experience of shared identity, mutual engagement, and shared repertoire connects people even before their commonality is reflectively or discursively elaborated. Wenger (1998, p. 125) identified a set of indicators for when "a community of practice has formed". To date, these indicators remain the closest approximation to a set of criteria to define CoPs and are a valuable tool allowing researchers and managers to identify a CoP. Identity-based connections, in turn, sustain engagement in and meaning-making, which make the practice possible, thereby perpetuating both the practice and the community (Cox, 2005) and triggering the emergence of the us-them distinctions underlying the *defending* lens identified in our review.

Practice-oriented ("hybrid") scholars and consultants propose a third and slightly different response to the question of what are CoPs. This stream of work portrays CoPs as bounded, homogeneous, and consensual entities characterized by common interests, knowledge, and values (Saint-Onge & Wallace, 2003; Wenger et al., 2002; Wenger & Snyder, 2000). For example, Wenger et al. (2002, p. 4) define CoPs as "groups of people who share a concern, a set of problems, a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis". This group of individuals is seen as engaged in the same occupation; they carry out the same tasks around which occur ongoing interactions. Unlike teams and formal groups, CoP members do not have to deliver a service or complete a specific task (Wenger & Snyder, 2000). What bounds them is the desire to improve their

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[1] Wenger's views shifted over time, adding further equivocality to the discussion.

expertise, motivated mainly by a passion for what they do. By remaining in touch, they help one another to solve problems, transfer best practices, develop professional skills, and help organizations to retain talent. CoPs are voluntary collectives of individuals working in relative harmony to share knowledge, respond to organizational challenges, and add value. The *innovating* lens identified in our review is rooted in this managerial understanding and signals a shift from CoPs as an analytical tool to CoPs as a managerial technique (Cox, 2005).

## 3.2    *Definitional issues: what CoPs are not*

Attempts to define CoPs advanced in parallel with efforts to distinguish them from other similar social formations. The first problem was related to how CoPs could be distinguished from other tight-knit groupings such as informal work groups and project teams. Some scholars suggested the criteria of formality, accountability, and membership: while teams are created "artificially" by managers assembling people with different but complementary backgrounds and competencies to complete specific projects, CoPs are self-selected and self-organizing and set their own agendas and their leadership (for a discussion, see Wenger & Snyder, 2000).

The second issue was related to how to deal with proximity and intensity of interaction. Does a CoP involve individuals interacting physically? Can this interaction be virtual? What happens if the level of interaction diminishes? The question of proximity is especially important in the context of the rapid take-up of information and communication technology during the late 1990s and the emergence of the idea of virtual communities, defined as "social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" (Rheingold, 1993, p. 5). The idea of a virtual community raises the issue of whether the traditional communitarian view of CoPs is too restrictive and whether virtual

CoPs (VCoPs) could exist and thrive in an online environment, by connecting dispersed members (Amin & Roberts, 2008). These questions were settled pragmatically, with several studies arriving at the same conclusions that online learning initiatives have many – or at least some – of the characteristics required to be considered a CoP (Ardichvili et al., 2006; McLure Wasko & Faraj, 2000; Milne & Callahan, 2006). Accepting the idea that CoP relationships can be maintained by people who do not interact regularly and interact at a distance (via virtual media), raised the issue of what happens to a CoP if the intensity of the interaction diminishes. To address this, Brown and Duguid (2001) proposed a distinction between CoPs and networks of practice (NoPs). They suggested that NoPs were broader and more encompassing than CoPs because the relationships in a network are weaker than those among the members of a community (Tagliaventi & Mattarelli, 2006). However, the practice brings people together in NoPs: "Though practice is not coordinated within a NoP as it is in a CoP, common practices and common tools allow distant members to exchange global know that and to re-embed it" (Duguid, 2008, p. 113). Similarly, Lindkvist (2005) suggested a distinction between knowledge-related communities such as CoPs which build on shared experience, and collectives of practice which although not characterized by the same intimacy, endurance, and learning together, are equally bound by epistemic processes such as information sharing, mutual assistance, and exploitation of fellow members as external memory.

Table 3 provides a list of the constructs that were developed to compare with or extend the idea of CoPs. These constructs help to explain CoPs by explaining what they are not. The dimensions in column 1 derive from the preceding discussion of definitional issues. Note table 3 includes occupational communities since in their seminal study Brown and Duguid

(1991) use this term as an empirical example of a CoP. We return to occupational

communities later in the paper[2].

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*3.3 The debate on managerial use of CoPs: what are CoPs for?*

Debate over how CoPs should be defined was accompanied by arguments about what CoPs

are for – that is, their purpose, function, and expected effects. Murillo (2011) notes that the

controversy unfolded around the divergent understandings of academics, hybrid scholars, and

practitioners. Whereas academics emphasize the emergent, informal, and emancipatory

nature of CoPs, hybrid scholars and practitioners foreground the business value of CoPs and

are interested in identifying, supporting, and/or cultivating CoPs to manage organizational

knowledge and foster innovation. These divergent understandings help explain the

fragmented nature of the scholarship on CoPs and the decline in academic interest in the topic

in the mid-2000s.

As already mentioned, the concept of CoP was conceived originally as an analytical tool,

which intuitively captured the process and a set of relations emerging around (workplace)

activity, learning, and sharing (Lave & Wenger, 1991; Brown and Duguid, 1991; Østerlund

& Carlile, 2005). It was impossible to control or instrumentalize this process for the simple

reason that it is incompatible with the traditional managerial worldview.

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[2] For space reasons, table 4 does not include other terms introduced over the years to refer to phenomena similar
to CoPs, such as communities of knowing (Boland & Tenkasi, 1995), internal networks of practice (Tallman &
Chacar, 2011), strategic communities (Storck & Hill, 2000), knowledge networks (Büchel & Raub, 2002),
communities of coping (Korczynski, 2003), and knowledge communities (Barrett et al., 2004). These terms are
used either only in a particular paper or by a very small number of studies, and therefore are not properly
developed.

Hybrid scholars and consultants had rather different understandings of the CoP concept. Starting in the late 1990s, they adopted (and adapted) CoPs as a primary consulting technique to manage knowledge processes in organizations and to improve firm innovativeness, knowledge, and intellectual capital (Lesser & Storck, 2001). Consultants turned to CoPs following the failure of early attempts to provide strictly technological solutions to the issue of stewarding knowledge for innovation (McDermott, 1999). They believed that instead of creating vast electronic repositories of best practices that nobody applied, organizations should become learning systems, pursuing what Hansen et al. (1999) call a personalization (vs. codification) strategy for managing knowledge. When established, cultivated, and managed carefully through soft forms of control (Wenger et al., 2002; Wenger & Snyder, 2000; Saint-Onge & Wallace, 2003), CoPs could be leveraged to achieve strategic advantage and serve as valuable sites of individual creativity and innovation. In particular, they would contribute to addressing the well known relational, cultural, and trust issues which hamper innovation (Garud et al., 2013), including compartmentalization, lack of communication, and divergent interests and differences among members of different parts of the organization related to how they understand their worlds (Carlile, 2004). The divergence between interest in learning and in managing innovation was reflected in a split within the academic community between scholars who, like consultants, saw CoPs as a way to support knowledge management (Hong & O, 2009; Lesser et al., 2000; Lesser & Storck, 2001; Raz, 2007; Thompson, 2005), and scholars who saw CoPs research as an effort to elucidate the nature and inner workings of learning in organizations (Easterby-Smith et al., 1998; Gherardi & Nicolini, 2000; Huysman, 2004).

The latter group explicitly accused practitioners and hybrid academics of betraying the original meaning of the concept and selling out to the managerial agenda (Contu & Willmott, 2000; Duguid, 2008). To try to counteract this tendency, they focused on the issue of power

which was central to early formulations of the notion. For instance, Brown and Duguid (1991)attributed a clear countercultural status to CoPs. In their view, the anti-establishment ethos, egalitarian nature, and "maverick" status of CoPs were critical for allowing them to become sites of individual creativity, organizational learning, and innovation (Brown and Duguid, 1991, p. 48). The emphasis on power and the emancipatory nature of CoPs, which are at the core of what we call the defending lens, resonates both theoretically and politically, especially with scholars from the MO community during the heyday of management critiques in the 1990s and early 2000s. Adopting a critical sensitivity, these authors foregrounded the conflict and power dynamics within CoPs (Contu & Willmott, 2003; Hodges, 1998), between CoPs (Hong & O, 2009), and between CoPs and their parent organizations. The result was a portrayal of CoPs as contested social spaces riddled with socio-political complexities which needed to be accounted for in order to understand them and "make them work" for organizations.

### 3.4    A fragmented research community? Three lenses to study CoPs

The controversies over what did and did not constitute a CoP, what CoPs were for,  alongside related arguments about their utility as a managerial technology, became a watershed in the evolution of the concept. The unresolved definitional issues and the presence of a variety of conflicting, contested, and yet non-mutually exclusive ways to define CoPs created almost insurmountable practical difficulties for academic research on CoPs. The lack of definitional clarity around CoPs meant that establishing whether what was being observed was a CoP was almost impossible. This made empirical research in this area extremely difficult and made the accumulation of a body of evidence impossible. This rapidly reduced academic attention on this topic; the only viable empirical object of study for academics was the "cultivated" CoPs (Wenger et al., 2002) established by companies as part of their knowledge management

efforts. However, many academics were uncomfortable with this notion and distanced themselves from what they regarded as an ideologically tarnished concept that had been appropriated by practitioners and therefore had lost necessary theoretical "purity" (Van De Ven & Johnson, 2006). The few remaining researchers who continued to study CoPs used the learning, innovation, and defending lenses which magnified certain aspects and diminished others, creating boundaries and perpetuating the fragmentation within the CoP research community. When asked what CoPs are created for or how they add value to organizations, responses would differ depending on the lens being used. Some regarded CoPs mainly as a way to facilitate sharing knowledge across generations and boundaries; others understood them as a source of innovation capability and value creation; while yet others viewed CoPs as mechanisms to defend interests and perpetuate control over expert domains. In the succeeding sections, we review each of these lenses in depth and make the case for why the boundaries between these three lenses should be erased. We set the stage for new dialogue to reinvigorate the study of CoPs and convince MO academics to refocus on this area, arguing that research on CoPs would be a potentially fruitful research direction.

## 4    THE LEARNING LENS: COPS AS WAYS OF DEVELOPING COMPETENCIES AND SHARING KNOWLEDGE ACROSS GENERATIONS AND BOUNDARIES

The learning lens is rooted in the original perspective on CoPs proposed by Lave and Wenger (1991). According to the authors, learning involves the social becoming of people and investing in a new identity rather than just the accrual of their cognitive capabilities (Lave, 1988, 2011, 2019; Wenger, 1998). The learning lens explores the theoretical and practical implications of the four basic assumptions which distinguish this approach from other approaches to individual and organizational learning (Mabery et al., 2013; Maclean et al., 2020; Rippin, 2013; Hildreth et al., 2000; Wolf et al., 2011). First, it considers learning to be

not a detached activity but an inherent part of everyday experience. Second, it considers learning to be essentially social and based on direct contact with other individuals, books, articles, or tools. Third, learning means "becoming": when learning a practice (e.g., computer programming or nursing), people also form a new identity and gradually become, to some extent, a new person. This requires devoting time, resources, and effort -- so that the new identity becomes invested. Fourth, competence in practice is learned by engaging with different generations of practitioners in the social context (novices, advanced practitioners, and seasoned experts). Studies that adopt a learning lens are mostly descriptive (see table4 for some examples).

From a learning lens perspective, CoPs work to support individual competence development and facilitate knowledge sharing and engagement across organizational and practice boundaries. We examine each of these functions below.

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*4.1   Learning lens: CoPs to develop competencies in practice*

From a learning lens perspective, a CoP enables the development of competence to become a more effective practitioner in a given area through a process of "legitimate peripheral participation" (Lave & Wenger, 1991). This is accompanied by the development of a personal and professional identity through meaningful engagement with other CoP members (Styhre et al., 2006; Yanow, 2004). This view of learning is radically different from the traditional idea that individuals develop mastery through the acquisition of cognitive content (e.g., Chase & Simon, 1973; Dreyfus & Dreyfus, 1986; Simon, 1991) or direct instruction

from a professional body (Guechtouli et al., 2013). Instead, the learning lens considers that thinking, learning, and doing are not separate – an idea captured by the neologism of "knowing-in-practice" (Nicolini & Meznar, 1995, p. 728), and that learning is a social accomplishment attained through daily practice rather than through a dedicated activity only (Gherardi, 2000).

Some authors believe that productive learning in CoPs requires a core group of expert community members and a group of peripheral "students in practice" (e.g., Wenger, 2000; Wenger et al., 2002). Several studies adopt this view and discuss the roles of the "periphery" and the "center". For example, Roan and Rooney (2006) discuss the role of mentors and claim that observation of experts' work is essential for successful learning in CoPs. This is because it allows practitioners to reflect on their practice, reassess their goals, and achieve cognitive change. Similarly, Stierand (2015) and Dörfler and Eden (2019) emphasize that the circumstances most conducive to developing competence in practice are various forms of master–apprenticeship relations.

Other studies focus on the experts. Brooks et al. (2020) believe that peripheral members bring new and rich perspectives to the CoP, which allow experts to learn from novices. Others authors note that "old-timers'" dominance can reduce newcomers' learning (Contu & Willmott, 2003; Levina & Orlikowski, 2009). Also, the position of experts in CoPs can shift with changes to the practice (e.g., the emergence of new technology) which alters the relationship between old-timers and newcomers (Mørk et al., 2010).

Finally, there is a stream of work that studies the learning opportunities for novices and contrasts the "situated curriculum" with the official curriculum often imposed on novices (Gherardi et al., 1998). This stream of research emerged in response to the fragmentation and segmentation of work typical of capitalist modes of production (e.g., butchers' work becoming deskilled when it moved from craft shops to supermarkets),  the emergence of new

technologies (Beane, 2019), and the new division of labor (Myers, 2021) all of which hamper

learning and development of self-identity (Lave, 1988, 2019). Myers (2021) examines the

learning processes in dispersed CoPs and finds that storytelling plays a critical role in

building on the experience of others. Beane (2019) studied legitimate peripheral participation

in the context of the emerging technological domain of robotic surgery. He showed that

novices encountered serious obstacles in their learning journey due to a lack of learning

opportunities, safety concerns, and the highly individualized nature of the new practice (a

single surgeon operating the robot vs. the traditional surgical-team approach). This required

the novices working in relative isolation to adopt a set of opportunistic remedial strategies

that Beane describes as "shadow learning" (e.g., abstract rehearsal, high-risk under-

supervised trials). Beane's work confirms that in contemporary business environments,

practitioners are under pressure to actively design and manage their careers to become

competent professionals (Roberts, 2006). Also, individuals may participate in multiple

communities rather than identifying with and investing in, becoming members of a single

community (Handley et al., 2006; Macpherson & Clark, 2009). Learning how to design and

manage one's identity trajectory navigating through the rich landscapes of multiple CoPs can

be essential for becoming a competent practitioner (Pyrko et al., 2019).

*4.2   The learning lens: CoPs as ways to facilitate knowledge sharing*

The learning lens assumes also that the main function of a CoP is to enable its members to

share knowledge within and beyond its boundary and to support and nurture distributed

knowledge in organizations (Hildreth et al., 2000; Lindkvist, 2005; Orlikowski, 2002). CoPs

are considered favorable social spaces which allow people to learn from one another and

provide the opportunities to share and enrich tacit knowledge (Duguid, 2005; Faraj et al.,

2016; Raelin, 1997).

One strand of research takes a cognitive view, whereby tacit knowledge is viewed as a cognitive potential that resides in peoples' minds – that is, something that can be acquired (Raelin, 1997), captured (Tallman & Chacar, 2011), shared directly through communication, and converted to an explicit form (Nonaka & Takeuchi, 1995). These studies see CoPs as enabling the transfer of knowledge among individuals and across organizations through conversational and narrative methods (Brown & Duguid, 1991; Hydle et al., 2014). They emphasize the need to encourage knowledge sharing among CoP members and to provide organizational conditions conducive to open exchanges (Ardichvili et al., 2006; Li, 2010). Knowledge sharing can be encouraged by the offer of intrinsic rewards (Jeon et al., 2011; Nesheim et al., 2011), a safe space to reflect on one's actions in the community (Ayas & Zeniuk, 2001), without attracting blame or criticism (Ardichvili et al., 2003). Others highlight that development of a shared understanding enabled by CoPs is crucial for enabling effective interdisciplinary work (Oborn & Dawson, 2010). Knowledge sharing requires a level of cognitive change (Porac et al., 1989) achieved through engagement and social negotiation in the community (Roan & Rooney, 2006; Tansley & Newell, 2007).

Another strand of work is in line with Polanyi's (1962, 1966) assumption that tacit knowledge can only be shared indirectly through socialization and shared practice: tacit knowledge needs to be rediscovered as people mutually engage with one another in the context of a common activity (Duguid, 2005; Orr, 1996; Pyrko et al., 2017). Sharing of tacit knowledge relies on mutual identification rather than direct communication. The sharing of tacit knowledge in CoPs occurs through telling and learning situated stories about what worked well or not (Orr, 1996), group thinking about real-life problems which the members of the community genuinely care about (Pyrko et al., 2017), and interpreting together the work requirements in relation to members' experience and what the job requires (Gherardi & Nicolini, 2000, 2002). Several studies investigate the organizational conditions that facilitate

a sense of identification with the community. For example, Lervik et al. (2010) explore the temporal aspects that affect CoP members' ability to identify and engage with the community and found that external temporal factors (interruptions, unexpected deadlines) hinder sharing knowledge. Valentine (2018) suggests the need to reformulate managers' formal obligations to provide a favorable climate for sharing knowledge within local CoPs. Jacobs and Coghlan (2005) highlight the need to listen to the "silenced voices" in CoPs, and Howorth et al. (2012) point to the importance of familiarity, motivation, and appropriate activity rhythms to facilitate conversations that are conducive to sharing of tacit knowledge.

### 4.3   The learning lens: CoPs as ways of circulating knowledge across organizational, generational, and practice boundaries

A learning lens also identifies the need to facilitate knowledge circulation and learning across various types of boundaries. Knowledge - especially tacit knowledge - is sticky (Szulanski, 2002), and tends to remain within the boundaries of the local practices in which it was originally developed. Physical and online CoPs enable the transfer of knowledge beyond these boundaries, which rarely coincide with the boundaries to formal organizations. Most organizations are not single CoPs "but, rather, hybrid groups of overlapping and interdependent communities" (Brown & Duguid, 1998, p. 97). At the same time, CoPs (Wenger, 1998) and other types of knowledge-based groups such as NoPs straddle organizational boundaries and enable the "sharing [of] a great deal of knowledge … crossing the boundaries of particular organizations and following routes prepared by practice" (Brown & Duguid, 2001, p. 206). Thus, CoPs and NoPs are able to transform sticky knowledge into knowledge that leaks across boundaries. CoPs and NoPs support the circulation of knowledge both geographically and temporally. CoPs enable members from different generations to

share their knowledge, allowing practices to cross both spatial and time and generational boundaries (Handley et al., 2007; Mason et al., 2017; Wenger, 2000; Yanow, 2004). While sharing and learning across boundaries exposes different communities to new perspectives and ideas, it involves translation and understanding problems. Carlile (2004) observes that knowledge is localized, embedded, and invested within a CoP. Therefore, working across CoPs generates various types of knowledge obstacles – semantic (lack of information), syntactic (requiring translation), or pragmatic (involving power relations that require negotiation). Oborn and Dawson (2010) found that learning across CoP boundaries requires organizing discussions and facilitating social arrangements in a cross-community setting, connecting and integrating views, and challenging the prevailing assumptions in the CoP. Agterberg et al. (2010, p. 101) suggest that managers should focus on "stimulat[ing] the creation and sharing of content that is relevant to the larger organization, without losing the relevance for network members' local daily practices". Carlile (2004) and Bechky (2003) point to the crucial role of boundary objects, artifacts that can serve as mutual points of reference to facilitate interactions across CoP boundaries and provide the basis for a shared language among CoPs. In contrast, Levina and Vaast (2005) highlight the importance of boundary spanners, that is, individuals who exploit organizational and professional resources and artifacts to link previously separate disciplines and create new research areas, especially non-mandated ones. The focus of the learning lens on boundaries and related issues overlaps with work related to the defending lens, which focuses on CoP jurisdictions, conflicts over control, and power issues more generally.

### 4.4  Literature adjacent to the learning lens

Since the mid-2000s, the level of interest for CoPs in MO studies seems to have declined. However, the literature on topics traditionally associated with the study of CoPs migrated to

other adjacent streams of work. In the case of the learning lens on CoPs, there are three bodies of work that explore topics discussed originally in the context of CoPs: virtual networks, learning in occupational communities, and workplace learning.

4.4.1   Learning and knowledge sharing in virtual networks

The literature on learning and knowledge sharing in virtual networks sheds light on many of the topics addressed originally in the context of virtual NoPs (McLure Wasko & Faraj, 2005) without specific reference to CoPs and NoPs in many cases. Research on virtual networks shows that these online formations facilitate connections with other practitioners and access to new learning (Steffen et al., 2019). These networks add value to organizations by helping their employees increase their communicational visibility – knowledge of who knows what, who knows whom, who is interested in what, who wants to contribute to what (Leonardi, 2014; Majchrzak et al., 2009). This enhances knowledge sharing (Hew & Hara, 2007), and participants in virtual networks benefit from increased reputation, social capital, and career opportunities (Cummings et al., 2006; McLure Wasko & Faraj, 2005). However, several authors caution that virtual networks are fluid and less structured than CoPs, and therefore, are more difficult to fully integrate with the organization (Addicott et al., 2006; Faraj et al., 2011; Heizmann, 2011). They require specific types of managerial activities such as buffering and brokering, filtering the interactions between head office and network members, and translating demands in ways that make sense to the network members (Soekijad et al., 2011). The emergence of corporate social networking tools (Leonardi, 2017; Vaast, 2007) and enterprise social networks, which allow members to keep up to date and foster collaboration, communication, and knowledge sharing among employees (Von Krogh, 2012) has resulted in several studies along these lines. This and other streams of research on virtual networks focus

on social connections rather than the content relevant to the network, which is in line with CoP studies (Agterberg et al., 2010).

### 4.4.2 Learning and sharing knowledge in occupational communities

Occupational community research includes several studies of communal learning and knowledge sharing processes. Interest in learning and knowledge sharing in occupational communities became prominent with Bechky's (2003) study, which examines how different occupational communities in the same firm use material referents to develop mutual understanding and to overcome the boundaries erected by their diverging occupational perspectives. Authors in this tradition examine learning and knowledge-sharing-related issues, although, as we discuss later, their interest is often in the processes of self-control and protection of expertise jurisdictions. For example, several authors examine the effect on how occupational communities work and learn of organizational restructuring (MacKenzie & Marks, 2018) and implementation of new standards (Sandholtz, 2012). Others investigate the attitudes of occupational communities to new forms of working and learning such as teleworking (Peters & Heusinkveld, 2010). Some studies examine the degree of embeddedness (organizational integration) of one compared to another occupation in an organizational context and the degrees of independence achieved by those occupational communities (Bechky & Chung, 2018).

### 4.4.3 The debate on CoPs in education and workplace learning

Much debate on CoPs to support learning and socialization of novices continues in the field of education, including schooling, vocational, and workplace education, where the notion of CoPs originated—initially, CoPs was a learning, rather than a management theory (Wenger, 2010). For example, the books by educationalist authors such as Barton andTusting (2005)

and McDonald and Cater-Steel (2017) include chapters that problematize the notions of power, language and conflict in CoPs in a non-corporate setting. Many authors consider that CoPs would benefit vocational learning. For example, Brew (2003, p. 15) observed that by participating together in the same CoPs, "both students and academics [can] explore the issues that confront them". Similarly, Tonso (2006) considers CoPs related to education to be spaces where engineering students can interact with "real engineers" and can begin to develop a professional identity while still studying as opposed to only starting work. CoPs can also help to integrate the practices of academics to increase interdisciplinarity(Tight, 2004; Vrieling et al., 2019; Wenger & Trayner-Wenger, 2015). Similarly, VCoPs and blogs can enhance teachers' learning and support lifelong learning and development (Yang, 2009).

*4.5    Summary of the learning lens*

In summary, the learning lens focuses on the social learning mechanisms within CoPs and the learning function that CoPs perform in organizational contexts. CoPs are understood as the social formations that stem from (and support) the socialization of newcomers and the development and circulation of collective competence through mutual engagement (Lave & Wenger, 1991; Styhre et al., 2006; Yanow, 2004).

Knowledge perpetuation, exploitation, and how competence is transmitted across generations are central themes here. There are different underlying assumptions about the nature of knowledge (i.e., whether tacit knowledge has cognitive potential which can be captured, acquired, and shared - Raelin, 1997, or whether knowledge can be shared only through socialization in practice - Polanyi, 1962). These differences are reflected in the varying attitudes to whether and how competencies travel across space and across boundaries. CoPs have been considered as a way to facilitate the sharing of knowledge across boundaries, the obstacles to knowledge flows (Carlile, 2004), and mechanisms that facilitate knowledge

sharing in cross-boundary settings (Oborn & Dawson, 2010). This stream of research overlaps with the adjacent literature on knowledge sharing in occupational communities, although the latter works focus more on processes of self-control and protection of expertise jurisdictions than on jurisdictions, boundary objects, boundary spanners, and boundary work (Bechky, 2003; Langley et al., 2019).

## 5    THE INNOVATING LENS: STUDYING COPS AS A SOURCE OF INNOVATION CAPABILITY AND VALUE CREATION

Researchers who adopt an innovating lens are interested in the use of CoPs to support business value creation and the firm's innovation capabilities. Here, innovation capabilities are understood as "the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders" (Lawson & Samson, 2001, p. 384). Through an innovation lens, CoPs are viewed as agents of change and novelty (Visintin et al., 2005) and creators of best practice (Gertner et al., 2011) to support continuous improvement and incremental or radical innovation (Pattinson & Preece, 2014; Randhawa et al., 2017; Schenkel & Teigland, 2008) (Brown, 2004; Swan et al., 2002).CoPs are seen as a social mechanism fostering new strategies (Peters & Heusinkveld, 2010), important new competencies (Iaquinto et al., 2011; Oluikpe, 2012; Pavlin, 2006; Scarso et al., 2009), and strategic alignment within large international organizations (Aljuwaiber, 2016; Malik et al., 2020; Pattinson et al., 2016; Wang et al., 2019). Their effectiveness tends to be evaluated in market terms – for example, as enabling wealth creation (Wulandhari et al., 2021), fully functioning markets (Martin & Schouten, 2014), and commercialization of technology (Fernández-de-Pinedo et al., 2019).

An innovating lens examines questions related to which factors enhance the capacity of CoPs to add value, such as the roles of media and IT support (Kling & Courtright, 2003; Sims,

2018), trust and reciprocity (Jang & Ko, 2014; McLure Wasko & Faraj, 2000), and hierarchy (Lamb, 2003; Schenkel & Teigland, 2008). Some investigate how CoPs could be managed to benefit the organization and propose actions to facilitate or support CoPs (Borzillo, 2009; Cross et al., 2006; Liedtka, 1999; Siedlok et al., 2015), or focus on measuring CoP performance (Loyarte & Rivera, 2007).

Several authors try to establish a direct connection between CoPs and innovation capability. For instance, some investigate why certain companies are innovative, and others are not (Autio et al., 2008; Bertels et al., 2011; Dougherty, 2001), using the concept of CoPs to explain how the dissemination of new ideas leads to innovation (McLeod et al., 2011). The innovating lens embraces the idea that CoPs can be used as managerial tools and instruments for fostering change and innovation. This view contrast with those who believe that traditional managerial goal setting and accountability practices are in compatible with CoPs, as they may interfere with the rhythm of the community's life, overshadow the need for mutual engagement around innovative ideas that community members care about (Addicott et al., 2006; Pattinson et al., 2016; Thompson, 2005, 2011), and reduce CoPs to a rhetorical device (Swan et al., 2002). This instrumental view of CoPs makes the innovating lens the most prescriptive of the three. It considers the outcome of CoPs to be the development of new knowledge rather than the sharing and perpetuating existing knowledge. CoPs add value in three ways: by modifying existing practices, resolving existing problems and addressing new ones, and generating new ideas, products, and services. Table 5 presents some exemplary research from an innovating lens perspective.

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5.1    *The innovating lens: CoPs as ways of modifying and improving work practices*

Research along these lines often presents CoPs as ways of introducing or supporting change - especially incremental improvements - in organizations (Visintin et al., 2005). It frequently focuses on improving business performance and achieving business impact, and thus, its effects are considered practitioners positively. This positive view is endorsed also by the practitioner-oriented literature (Cross et al., 2002, 2006; McDermott & Archibald, 2010). In this view, CoPs achieve change mainly through modifications and improvements to work practices and increasing process efficiency through collective learning (Spanellis et al., 2021).

CoPs can also increase the range of the firm's practices, as discussed previously by Anand et al. (2007). In this case, CoPs are especially valuable in relation to complex technical practices and in tacit knowledge contexts (Nicholls & Cargill, 2008). CoPs can reduce coordination costs (Batt, 2001), align or stabilize existing practices (Gherardi & Perrotta, 2011; Martin & Schouten, 2014; Siedlok et al., 2015), and facilitate adoption and integration of new ways of working (Aoki, 2008; Hotho et al., 2014). Theodorakopoulos et al. (2012) provide the example of a CoP involving coffee growers to develop new practices and facilitate technology adoption.

## 5.2 *The innovating lens: CoPs as ways of generating and circulating new ideas*

CoPs can also be considered tools enabling the development of innovation capabilities through the deliberate search for solutions to existing problems and framing and responding to new challenges. From this perspective, CoPs are the birthplace of new ideas and mechanisms to harness new knowledge to create innovation (Garud et al., 2013; Swan et al., 2002). They also are considered spaces allowing the emergence and identification of new ideas (Brown, 2004; Chu, 2016; Brown & Duguid, 1991; Ji et al., 2017) and sharing them across organizational boundaries (Lee & Williams, 2007; Pattinson et al., 2016). Thus, CoPs

enhance innovation capabilities by allowing ideas to spread beyond organizational boundaries, enabling knowledge spillovers within organizations (Autio et al., 2008) and thereby supporting processes of creative abrasion (Boland et al., 2007; Pattinson & Preece, 2014). A CoP can be seen also as a way to accelerate the formation of innovative cross-organizational units and to streamline innovation activities in large organizations (Pombo-Juárez et al., 2017). CoPs can be used for creating collaborative innovation hubs (Kirkman et al., 2013; Malik et al., 2020) and creating long-term strategic foresight hubs and activities (Peter & Jarratt, 2015).

*5.3    The innovating lens: CoPs to solve problems*

An innovating lens tends to be associated with collaborative problem-solving in a CoP. In this case, the CoP's primary function is to provide advice and support on and find solutions to community members' immediate problems (Assimakopoulos & Yan, 2006; Batt, 2001; Richardson et al., 2006). Bruce and Banister (2019) studied a group of military spouses who used a community-based approach to obtain practical and emotional support when their spouses were absent. The members of these social communities may not identify the group as a CoP, although they exhibit CoP characteristics. In this stream of literature, the distinction between CoPs and NoPs is blurred (Khoo & Hall, 2013).

Studies of CoPs as the locus of problem-solving often examine how interactions happen and which sharing practices facilitate problem identification and their solution. They identify stories (Bruce & Banister, 2019; Dougherty, 2001; Khazraee & Gasson, 2015), discussion (Nicholls & Cargill, 2008), and joint sensemaking (Faraj & Xiao, 2006). In this strand of work, the important role of space is emphasized. It can be a physical space where the practice is carried out (e.g. an assembly shop for bikers; Martin & Schouten, 2014); a virtual space which acts as an interaction medium (e.g. social media; McLure Wasko & Faraj, 2000; Nisar

et al., 2019); or an interactional and conversation-based space in which joint knowledge creation and problem-solving can take place (Nonaka & Konno, 1998).

*5.4 The innovating lens: CoPs as enablers and barriers to innovation*

The innovating lens considers that CoPs support business value creation and firm innovation capabilities, as in Dougherty's (2001) study of how innovative organizations "reimagine" themselves through CoPs. The idea of a CoP provides a blueprint for the organization of innovation and a reduction in the tension between differentiation and integration; it helps managers to envisage how organization members could work together to improve practices, enhance value, generate and circulate ideas, and solve problems while avoiding chaotic or free-riding behavior. CoPs can be aligned through relying on the unwritten shared norms which regulate the practice of CoP's members and through the establishment of shared values. This allows resolving integration problems in ways that avoid the well-known rigidities introduced by standardization of actions and direct control. Borzillo and Kaminska-Labbé (2011) suggest that this can be achieved by alternating two managerial strategies: stepping in and stepping out. Stepping in allows managers to manage and focus the attention of the CoP on a specific innovation objective and to align its activities with the organization's current innovation strategy. Stepping out translates into autonomy for the CoP to exploit internal and external contacts and freedom to explore new – sometimes radical – ideas. Not all of this literature is optimistic. Many scholars have found CoPs to be both enablers of and barriers to innovation (Pattinson et al., 2016). Their positive and negative effects depend on the type of innovation the CoP is working on. For example, Roberts (2006) questions whether CoPs can generate radical innovation, given that almost all examples of CoPs in action focus on incremental improvements. Also, innovation can be hampered by tensions and power dynamics within the group. In contrast to a learning lens that focuses on

community spirit and what is being shared, innovating involves tensions caused by disruption to established practices – a dimension that includes some overlap between an innovating and a defending lens. Such tensions can trigger clashes between the disruptors and those trying to maintain the established practice (Down & Reveley, 2004; Mørk et al., 2010). Tensions can arise also due to overlapping roles and responsibilities between different groups (Faraj & Xiao, 2006; Nicholls & Cargill, 2008), or vertical hierarchical control and competition. Ferlie et al. (2005) report cases where the creation of a uni-professional CoP (a CoP composed of members of the same medical specialty) facilitated the emergence of innovation within the community but created barriers to its wider diffusion in order to protect its members' professional jurisdiction and group identity. Baxter and Hirschhauser (2004) discussed the case of a dominant CoP in an organization which created the impression that internal improvements had been achieved without working on these improvements and used its power to pursue an agenda – in this case,, improved customer relations while creating the illusion of improvement. These findings have been replicated in other contexts and show that involvement of CoPs in innovation disrupts established practices and promotes competition with other players for control over resources and legitimacy (Gherardi & Perrotta, 2011; Mørk et al., 2010).

## 5.5 *Literature adjacent to the innovating lens*

Studying CoPs and their ability to foster innovation overlaps with work on teams and workgroups in that context of innovation. While several authors have tried to distinguish CoPs and teams (e.g., Wenger & Snyder, 2000), overlaps exist. For example, similar to the innovating CoP literature, research on teams and innovation is mostly prescriptive and concerned with how to improve and measure team performance (Hoegl & Gemuenden, 2001; Lovelace et al., 2001; Taylor & Greve, 2006) and how to make teams more effective (Bantel

& Jackson, 1989). This strand of work generally sees teams as organizational units that are sources of valuable knowledge and facilitate knowledge sharing  (Cummings, 2004). Overlapping themes include the role of managerial support (Bantel & Jackson, 1989), virtually mediated interactions (Majchrzak et al., 2000), and the social dynamics and tensions within teams (Lovelace et al., 2001; Smith & Tushman, 2005).

However, they differ particularly in terms of their composition. Research on CoPs tends to assume a degree of similarity among community members (e.g., common professional background, common interests, concerns about a common problem), whereas work on teams emphasizes the benefits for performance deriving from team members' diversity in terms of demographics (Bell et al., 2011; Dezsö & Ross, 2012) or knowledge (Bell et al., 2002; Cummings, 2004). In addition, work on teams grants limited importance to the role of identity in the formation and functioning of a cohesive social grouping.

A stream of work that overlaps partially with the innovating lens on CoPs is studies of collaborative innovation. Both bodies of work shed light on how to improve organizations' innovation performance and refer to idea-generating mechanisms and the processes of knowledge transfer and knowledge sharing among members (Arora et al., 2016; Trkman & Desouza, 2012; Van Burg et al., 2014). The focus in these cases is how companies can respond to the challenges of interconnected global environments by establishing new forms of organizing (Fjeldstad et al., 2012), for example, mechanisms of interfirm collaboration (Berry, 2014), which benefits from access to diverse expertise (Dell'Era & Verganti, 2010), and customer engagement in product innovation (Fernandes & Remelhe, 2016; Greer & Lei, 2012; Marchi et al., 2011). However, unlike work focused only on  CoPs, this stream is concerned less about how these new formations work and focuses instead on the success achieved by individual firms which benefited from these formations (De Silva et al., 2018;

Ritala & Hurmelinna-Laukkanen, 2013) and the risks associated with loss of valuable knowledge (Arora et al., 2016; Trkman & Desouza, 2012).

*5.6    Summary of the innovating lens*

An innovating lens provides theoretical and practical support for the idea that CoPs support firms' business value creation and innovation capabilities. It considers  CoPs as promoting process and product innovation, generating and circulating ideas, and solving problems. It identifies the necessary conditions for the achievement of these goals, including the managerial strategies that should be adopted to align CoP activities and organizational goals while maintaining community autonomy. It has been suggested that CoPs can be both enablers of and barriers to innovation depending on the frictions and competition among CoPs.

While an innovating lens exploits the insights derived from a learning lens, it differs by assuming that CoPs are established and managed by organizations. Unlike in a learning lens view, organizationally sponsored CoPs are more than mechanisms and sites to learn "the tricks of the trade"; they serve specific goals and aim to create desirable outcomes for the organization. This overlaps with work on teams and collaborative innovation.

## 6    THE DEFENDING LENS: STUDYING COPS AS SITES OF STRUGGLE AND CONFLICT OVER POWER AND EXPERTISE DOMAINS

The third stream of research investigates CoPs through a lens, which foregrounds power, conflict, and jurisdictional conflict. It questions the romanticized and nostalgic idea of CoPs as harmonious social entities able to resolve organizational problems (Contu & Willmott, 2003; Cox, 2005; Adler & Heckscher, 2006). Adopting a critical sensitivity, authors examine CoPs against the backdrop of the modern organization where knowledge is power and

expertise is often not so much distributed as Balkanized (Handley et al., 2007). They argue that the image of CoPs as highly consensual social formations is unrealistic given that CoPs members have diverse and often contrasting goals and interests and that what is at stake is access to scarce resources such as knowledge (Beane, 2019; Macpherson et al., 2020). The focus is on the power dynamics and defense of members' interests in the context of broader economies of knowledge and meaning. For this reason, we refer to this view as the defending lens.

Authors using this lens adopt a critical view of the relationships within and , among CoPs, and between CoPs and organizations. They suggest that micro-conflicts and subtle political struggles are inherent to CoPs since elements of power struggle are inevitably involved in the efforts of novices to gain access to practice and expertise (Lave & Wenger, 1991; Contu & Willmott, 2003). This work suggests also that one of the main functions of CoPs is to secure and defend the power positions of a given practice and its members. The influence and perceived value of CoPs are always provisional and depend on the perceived value-added of their skills and practical knowledge. The capacity to exercise control over areas of expertise and learning is existential for CoPs (Macpherson & Clark, 2009). CoPs are involved continually in power struggles to maintain their position vis a vis other CoPs (Contu, 2014), and expertise jurisdictions are carefully defended (Eyal, 2013), even at the expense of learning (Hong & O, 2009). Organizing against change, defending against other CoPs, and resisting organizational and managerial control are frequent CoPs activities (Hong & O, 2009).

Table 6 provides some examples of studies that use a defending lens.

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*6.1    The defending lens: CoPs as ways of protecting the  social position and privilege of experts*

Historically and conceptually, the departing point of the defending lens is a criticism of the idealized image of CoPs as homogeneous and consensual social formations that became dominant with the adoption of CoPs as a managerial technique (Saint-Onge & Wallace, 2003; Wenger et al., 2002; Wenger & Snyder, 2000: see Cox, 2005, and Duguid, 2008 for a discussion). For instance, Fox (2000) maintains that Wenger's (1998) theoretical framework ignores power and inequality issues for understanding CoPs. He contends that much is to be gained if, instead of thinking of CoPs in terms of individuals working and learning together in harmony, "we think … of force relations at every point in a network" (Fox, 2000, p. 859). This is suggestive of the micro-power conflicts which occur routinely in CoPs and include triadic group tensions between masters (or old-timers), young masters (or journeymen), and apprentices (or newcomers) around legitimacy, authority, and the right to decide whether a new practice is acceptable (Lave & Wenger, 1991, p. 56). They include competition among masters/old-timers over prestige and accolades and leadership and how alliances are established in this struggle (Fox, 2000). For example, Macpherson and Clark (2009) discuss how pipelayer gang masters in a large utility used their position to shape learning processes, by transferring their experience to some but not all junior operatives. The practices of socialization, induction, and learning "actively sustain the disparities in performance and shape trajectories of situated learning [in the organization]" (Macpherson & Clark, 2009, p. 563), creating boundaries between gangs and discrete "islands of practice". Fuller and Unwin (2004) show that force relations can be even more complex – as for example, when novices are engaged in passing on to old-timers the skills and knowledge acquired through their more recent education ; they then become temporary the "experts" in a role reversal scenario.

*6.2   The defending lens: CoPs as ways of defending against other communities*

Another recurring theme in studies adopting a defending lens is how CoPs compete to make their respective local practices relevant, influential, and necessary for the organization and for society, and some of the counterintuitive effects this promotes. For example, CoPs with strong identities may frustrate rather than facilitate learning and knowledge sharing (see Pyrko et al., 2019). Creating and maintaining a strong identity is linked to the creation of specific tools and linguistic repertoires, which build boundaries around practice and demarcate it from other CoPs –potentially creating a barrier to knowledge sharing (Carlile, 2002; Perron & Duffy, 2012). For example, outsiders to the practice are considered "others" (Heizmann, 2011). Alternatively, CoP members may reject innovations if non-members are perceived as lacking or incapable or are identified as competitors or threats (Huysman, 2004). For example, Yanow (2004) shows how managers and executives holding "expert" knowledge defended this privileged position by dismissing the local knowledge obtained through on-the-ground interactions with customers.

The strategy of delegitimizing non-members' knowledge or positions by deeming their views inadequate is used by CoPs also to defend their expertise within and beyond the organization (Roy & Sivakumar, 2011).  For example, Hong and O (2009) examined the interactions between two CoPs (an internal and an external CoP) during an organizational transformation initiative and found that the external community was rejected by the in-house IT community based on differences in identity and power relations. The tensions between the two groups caused the transformation project to fail. In a study of the interactions between regional and head office human resources staff, Heizmann (2011) found that these communities used different positions and discursive strategies which involved a refusal to accept and further the other party's knowledge. Consequently, establishing a dialogue and sharing knowledge can be

difficult if the knowledge of one of the parties is considered irrelevant or out of date (Heizmann, 2011).

Challenging and delegitimizing other CoPs can be achieved on the basis of institutional and professional standards and by leveraging the tools used in practice. Mørk et al.'s (2010) study of the introduction of a new surgery practice in a hospital showed that professional legitimacy is crucial for developing and implementing innovative practices because actors use their professional legitimacy to marginalize opponents to the introduction of an innovation. Macpherson and Clark (2009) show that the use of objects and tools allows CoPs to create boundaries that result in antipathy, conflict, and even higher boundaries which hinder learning. For example, inscribing knowledge into artifacts that support certain worldviews (D'Adderio, 2008) limits access to the knowledge by other CoPs. Once inscribed in an artifact, the knowledge, and practices of a CoP can spread and shape the conduct of the CoP, and exclude other CoPs from engaging with or owning the knowledge (D'Adderio, 2008). Materials and tools can be enablers of learning, but they can also reify the existing power positions within and between CoPs and shape organizational learning.

In summary, studies that use an innovating lens show that rivalry within and among CoPs can limit opportunities for innovation to percolate through the organization. In highly professionalized work contexts, the professional identity and expertise of employees may prevent the diffusion of innovations that are considered incompatible with or threaten their core identity (Currie & White, 2012; Khoo & Hall, 2013). To overcome such barriers, organizations should deploy cross-boundary mechanisms to bridge the differences among CoPs and address the political and pragmatic issues likely to emerge at their boundaries (Langley et al., 2019).

*6.3    The defending lens: Defending from managerial control, change, and uncertainty*

The relationship between CoPs and managerial control is a central theme for authors who favor a defending lens. As already noted, Brown and Duguid (1991) characterize CoPs as self-organizing forms of countercultural power which frequently deviate from the canonical path established by the formal organization. Thus, traditionally CoPs "have a flavor of resistance to authority, almost of organizational misbehavior" (Cox, 2005, p. 533) Scholars in this stream of work investigate how CoPs react to and occasionally resist management intervention. They describe a number of tactics used by the two parties. For example, Waring and Currie (2009) and Rennstam and Kärreman (2020) suggest that CoPs members may create safe spaces to protect and develop local practices likely to be adversely affected by managerial control. Rennstam & Kärreman (2020) describe this as "constructive disobedience". These spaces help CoP members resist the control imposed by the firm's managers in various institutions.

Safe spaces created by CoPs can serve a variety of functions. For example, they enable collaboration and experimentation with new ideas in a context of environmental uncertainties (Bridwell-Mitchell, 2016); they facilitate the emergence of supportive CoPs in unfamiliar or international contexts where access to local knowledge and practices is typically critical but constrained (Urzelai & Puig, 2019; Welch & Welch, 2015); they help to protect moral and ethical issues in complex contexts (Raz, 2007; Goncharenko, 2019). Importantly, these spaces protect their members even at the expense of organizational attachment and thus are not aligned to command and control management (Welch & Welch, 2015)

Similarly, authors researching new forms of working highlight how actors tame uncertainty by focusing on certain aspects of their practice and creating safe spaces. For example, in the gig economy, work is precarious, and formal employment structures are absent. However, by acquiring a repertoire of skills and excelling in the practices needed for successful career trajectories, gig workers become part of a wider CoP which helps them to navigate the work

scene. Mastering the practices associated with CoP not only enables individuals to obtain work, it also allows them to earn respect and legitimacy required to prosper in that work domain (Kost et al., 2020; McLeod et al., 2011).

Several scholars examine the managerial tactics used to circumvent the potential countercultural orientation of CoPs. Swan et al. (2002) studied the rhetorical use of the term "CoP" by managers in a large biomedical organization. They found that these managers leveraged the rhetorical power of the idea of "community" to enable encounters across professional boundaries and to circumvent their relative lack of power vis-à-vis other professional groups. Thompson (2005) examines the conflicting relationship between a CoP and its parent organization, WorldSystems, a global IT hardware, and services organization. He found that supporting the CoP required both knowledge-oriented and structural intervention.

### 6.4  *Literature adjacent to the defending lens*

Studying CoPs through a defending lens overlaps with the interest of occupational communities (and goes beyond the previously discussed overlaps with the learning lens). One of the problems related to studying occupational communities is understanding how "members engage in certain activities and compete with other occupational groups for exclusive claim to perform those activities" (Anteby et al., 2016, p. 200). Contemporary studies of occupational communities often explore how various occupational groups establish their status, how they compete with one another, and how jurisdictional battles develop within an occupational/professional ecosystem (Abbott, 1988; Huising, 2015; Lawrence, 1998; Nigam et al., 2016). Inter-occupational contestation is considered an ongoing aspect of organizational life, and how jurisdictional claims are realized in the context of work interactions is a frequent topic of investigation (Bechky, 2003; Kellogg et al., 2006).

Work on occupational communities examines several of the topics considered by authors using a defending lens – for example, the relationship between community and organization and strategies to avoid or buffer managerial control (Anteby et al., 2016; Huising, 2015). Overlaps with other lenses are also evident, given that the literature on occupations traditionally examines work and professional socialization and, more recently, has begun to focus on collaborative and co-production processes (Anteby et al., 2016).

Another strand of work that has some commonalities with the defending approach in CoPs is the literature on boundaries and boundary work (Gieryn, 1983, 1995; Langley et al., 2019). Boundary work is the "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. 1). Although not all of the literature on boundary work discusses the boundaries between CoPs (e.g., between scientists and nonscientists - Garud et al., 2014), many studies in this tradition explore how boundary work is conducted among groups that resemble CoPs (Burri, 2008; Hazgui & Gendron, 2015; Martin et al., 2009). Central to these studies is that boundary work involves the construction by the actors of a superiority (e.g., CoPs are more moral, more scientific, more competent). In these studies, boundary work is based on discursive practices (Garud et al., 2014), co-construction of practice (Hazgui & Gendron, 2015), defensive practices (Allen, 2000), and materiality (Burri, 2008).

## 6.5    *Summary of the defending lens*

In summary, the defending lens emphasizes that both learning and innovating in CoPs are underpinned by socio-political complexities which require careful attention and cannot be ignored. CoPs allow experts to protect their social position, erect boundaries, trigger mechanisms to defend their community from infiltration by communities that might trigger

change, and resist managerial control. The defending lens provides some balance with the optimistic view of the innovation lens, which tends to see CoPs as non-problematic tools that promote innovation and provide competitive advantage (Borzillo et al., 2012; Davenport & Prusak, 2000; Liedtka, 1999). Thus, the defending lens overlaps with studies of inter-occupational conflict and work on boundaries and boundary work. While several contributions which use the defending lens are rooted in critical management studies and thus do not address application issues, others criticize the framing of managerial intervention and suggest ways to enable managers to deal with CoPs (Huysman, 2004). The defending lens warns that while CoPs require some degree of managerial support, managers need to find a compromise between the formal obligations of CoPs and practitioners' learning needs (Borzillo, 2009; Cross et al., 2006; Liedtka, 1999; Siedlok et al., 2015; Valentine, 2018). Finding the right balance between the firm's strategy and the organic purpose and patterns in the CoP is important (Macpherson & Antonacopoulou, 2013). Managers should provide an external and maintenance role – for example time, space, resources, and recognition (Wenger et al., 2002); ensure alignment between the goals of the CoP and the organization (Probst & Borzillo, 2008); and set strategic goals and design activities that motivate engagement and add to the identity work of practitioners participating in local professional communities (Macpherson et al., 2020).

## 7   MOVING FORWARD BY QUESTIONING ASSUMPTIONS AND TRIGGERING DIALOGUE BETWEEN THE LENSES

Our systematized review identifies three lenses used by researchers to study CoPs: learning, innovating, and defending. Each lens foregrounds specific underlying mechanisms, intended outcomes, and social power dynamics and backgrounds others. The three lenses result from the historical development of the idea of the CoP: while initially, the focus was on learning,

the concept was increasingly used to discuss innovation and power struggles over expertise domains. Our review shows that many authors who adopted one or other of these lenses took little account of the work of others using another lens. This has resulted in a scholarly community that, while still thriving and impactful, is internally fragmented and often isolated from mainstream debates in MO.

This section explores the benefits to be derived from a dialogue among the scholars utilizing different lenses and between the study of CoPs and recent developments in the MO literature. We hypothesize that this could reinvigorate CoPs as an area of study and point to the opportunities for future research.

A dialogic rather than an integrative orientation is appropriate since the differences among understandings of CoPs are deep and have paradigmatic and ideological origins. Attempts to eliminate these differences are likely only to generate more controversy, which, as we learned from COP's history, risks stalling rather than promoting research. The way forward is to capitalize on the differences through productive dialogue rather than trying to eliminate them. Productive dialogue involves efforts to assimilate the strangeness of the other in order to create new openings and new opportunities (Tsoukas, 2009). Productive dialogue involves different theoretical positions, themes, and categories from one particular approach (or author) to reread and reconsider another perspective (or author). The interlocutor stimulates the search for new meaning and new distinctions enabling the other party to "find thoughts which I had no idea I possessed" (Tsoukas, 2009, p. 4). The aim is to produce something new, generate new research opportunities, and trigger novel conceptual combinations, extensions, and framings (Tsoukas, 2009).

Productive dialogue can be facilitated by the identification and intervention of some type of discontinuity or novelty: productive dialogue can be triggered by intentional self-reflection (Cunliffe, 2002) or triggered by events and changes in historical or material conditions. In the

case of CoPs, new interactions among lenses could emerge from a re-examination of the role of CoPs in light of the changes brought to bear by post-industrial organizations and investigation of CoPs using new methodologies. Further productive dialogue can also be established between scholarship on CoPs and adjacent literature in mainstream management and organization studies.

## 7.1    *Expanding the lenses and creating productive dialogues around the future of work*

New research opportunities, novel conceptual combinations, and productive dialogue among CoP lenses might emerge from work on the "post-industrial organization" (Huber, 1984) and the "future of work." We use these terms interchangeably to refer to the transformations to the nature of organizations, work practices, and employment relations (e.g., gig economy) which emerged at the end of the twentieth century and gained momentum with the spread of digital technologies and the internet (Schlogl et al., 2021). We argue that these societal changes pose serious conceptual challenges for all three lenses.

### 7.1.1    Challenges to the learning lens from the debate on the future of work

The learning lens to study CoPs focuses on providing accounts of the development of individual competencies, knowledge sharing, and cross-boundary working. It allows identification and theorizing about the specific mechanisms that facilitate these developments. Although these mechanisms have been considered general analytical categories (Lave & Wenger, 1991, p. 38), historically and conceptually, they derive from (and are exemplified by) the study of craft-based, pre-industrial occupations (e.g. midwifery, tailoring, butchery, navigation - Lave & Wenger, 1991). In other words,  the original notion of CoPs was rooted in a world that is disappearing or may never have existed (Adler &

Heckscher, 2006). This raises the question of whether the mechanisms identified by learning scholars have remained unchanged and how CoPs might operate in post-industrial society. These issues require empirical investigation and theoretical elaboration. While several scholars have challenged whether the learning mechanisms which occur in and around CoPs apply to the new work and employment conditions (Amin & Roberts, 2008; Fuller & Unwin, 2004; Myers, 2021; Roberts, 2006), few studies address the form taken by these processes in post-industrial organizations -- especially when work goes fully online, as has been the case during the Covid-19 pandemic (for an exception see Beane, 2019). We need to address the following fundamental questions: Do CoPs still exist? Have all CoPs become NoPs? Can we still distinguish between NOPs and CoPs? Have new forms emerged?

From a different perspective, we expect that the increased automation of work processes enabled by digitalization work and the use of algorithms will have significant implications for learning. For example, when work processes become highly black-boxed (consider the difference between drawing by hand vs. using CAD software on one's computer), it becomes difficult for novices to appreciate and understand the steps involved in the activity and for experts to delegate parts of the task to learners.  As a consequence, learning might suffer. Accordingly, we need to understand whether novices simply adapt traditional learning processes in digitalized workplaces or whether new processes have emerged, rendering CoPs outdated.

Other important learning lens questions arise from the digitalization of work environments. For example, how novices learn by assisting an expert in crafting a flute or conducting robotic surgery is not difficult to envisage (Cook & Yanow, 1993; Beane, 2019). However, one may ask: how does the use of simulations and simulators affect participation in a practice? Does using a simulation count as a form of participation? Can participation in practice be measured in terms of degrees? (see Ribeiro's, 2013 discussion of levels of

immersion). Can novices be socialized within and onboarded in a fully digitalized work environment? What is gained and lost vis-a-vis the traditional processes examined by CoP research?

7.1.2   Challenges to the innovating lens from the debate on the future of work

The tension between the future of work and the conceptual origins of CoPs in the study of craft-based pre-industrial occupations also affects the innovating lens. An idealized view of CoPs as a contemporary form of consensual, close-knit, and harmonious craft-based forms of socializing which can exist within (and co-exist with) formal organizations is what determines their utility for consultants and managers. This idealized view is core to the innovating lens (see Duguid, 2008 for a discussion). The future of work literature is interested in whether CoPs understood in this way can fulfill the three main objectives of the innovating lens, that is, can they improve work practices, generate ideas, and solve problems. In a post-pandemic world, are CoPs fit for purpose, or is innovativeness promoted better by a focus on less community-like mechanisms such as crowd-sourcing, online idea generation, and other forms of open innovation (Bayus, 2012; Brem & Voigt, 2007; Malhotra & Majchrzak, 2019). Were CoPs just another managerial fad, a benign form of a management ideology favoring greater empowerment and engagement (Liedtka, 1999), which is likely to be abandoned like other previous fashions? Are CoPs still useful? These questions warrant serious consideration given the still pervasive use of CoPs as a managerial technique. Recently,  Wenger has expressed doubt about the capacity of CoPs to capture the knowledge and learning dynamics of working in the new millennium, and instead refers to journeying across the "landscapes of practice" (Omidvar & Kislov, 2014; Pyrko et al., 2019; Wenger-Trayner et al., 2015).

### 7.1.3 Challenges to the defending lens from the debate on the future of work

The concept of the future of work also poses challenges for the defending lens. First, the advent of remote working and platform technologies is allowing distributed participation and almost unfettered access to practice bypassing traditional socialization processes. The retreat of traditional identification mechanisms such as legitimate peripheral participation problematizes the social construction of the insider/outsider distinction, which is a foundational assumption of the defending lens. For example, there is evidence that gig economy workers are developing alternative defending strategies not based on accumulating and guarding legitimacy in the form of rankings, ratings, and other evaluation measures common to traditional CoPs (Kornberger et al., 2017). Second and relatedly, proponents of a defending lens rarely consider modes of empowerment and power balance to be historical phenomena subject to modifications as social and material conditions change (Fox, 2000) which means that defending mechanisms are also subject to change. This raises several foundational questions: Historically, are CoPs bounded phenomena, or are they manifestations of a general and evolving mode of learning? Are CoPs a generalized phenomenon (in line with Wenger's (1998, p. 6) assertion that "communities of practice are everywhere [and]… we all belong to communities of practice"), or are they appropriate for certain but not all work environments and occupations?

### 7.2 *Generating productive dialogues among the lenses around the theme of the future of work*

We have seen that the shifting employment relations landscape typical of the future of work poses problems for the existing lenses and is leading to the emergence of new questions and new research opportunities. Work on post-industrial organizations (Huber, 1984) and the

future of work also provides an opportunity to establish connections and conversations

among the lenses and to generate new conceptual openings and lines of inquiry.

For example, the issues raised by the future of work bring together the *learning and*

*defending* lenses. Most studies of CoPs from these lenses focus on large organizations where

full-time employment is or was the norm. The notion of the future of work leads to

investigations into how situated learning and protection of expertise are being affected by the

demise of the employment relations prevalent in the XX century, and the increasing

casualization of work, the emergence of the gig economy, and the disappearance of the jobs-

for-life employment model. There are contrasting views. On the one hand, CoPs are

considered important gig economy workers who use them to share information and to

communicate, and to enable collective activism to increase their bargaining power (Chan,

2019). On the other hand, the fragmentation and job insecurity introduced by employment

practices in the gig economy are making it more difficult for a sense of community to

develop and are exacerbating differences between "elite workers" on the inside and the

outside and raising questions about how temporary workers and freelancers can be involved

in CoPs. Dialogue between the learning and defending lenses might shed light on this

apparent conceptual contradiction at the core of CoPs in postindustrial capitalist societies.

Other CoPs-related questions arise from bringing to bear the temporal perspective of the

*innovating* lens on the traditional *learning len*s themes. When aimed at fostering innovation,

CoPs are expected to operate within the compressed time typical of modern capitalist

organizations rather than the extended temporality typical of craft-based occupations around

which CoPs initially were conceived. The time taken for a CoP to emerge is rarely

considered: what happens to a CoP and its underpinning identification and learning processes

when time is compressed? The obsolescence of tacit knowledge due to rapid technological

change is equally raising questions about whether CoPs might become stale and irrelevant

and prevent rather than foster innovation, especially in periods of technological paradigm shifts (Bagozzi, 2007).

Productive exchanges between the *innovating and defending lenses* could be initiated by revisiting the assumptions that a recognizable body of expertise exists and is perpetuated by CoPs (Orr, 1996; Wenger, 1998). For example, the defending lens assumes that CoPs are established based on an uncodified historical body of knowledge where novices must be socialized. The innovation lens problematizes this assumption. Innovation activities can undermine the socialization process by disrupting traditional ways of doing things and affecting existing knowledge traditions, changing traditional tools of the trade and artifacts of the practice, thereby reducing the effectiveness of defending mechanisms. How can a continuously shifting territory be defended? How do CoPs deal with the increasingly fast transformations of work practices?

Finally, productive exchanges on the implications of post-industrial organization for CoPs can be established between the *innovating and defending* lenses. Work on the effect of post-industrial organization and the future of work could prompt questions about whether CoPs are inherently good for innovation – the optimistic view often adopted by adherents to the innovating lens. Proponents of the defending lens suggest that there could be other, more dysfunctional scenarios, especially in new organizations where the distinction between full-time and temporary workers is evident. In these new contextual conditions, CoPs could hamper, rather than foster, innovation. This suggests that more investigation is needed to focus on the dark side of CoPs – that is, the risk that they become islands of practice and employ defensive protectionist strategies which amplify the differences between insiders and outsiders. However, the contrast between the over-optimistic innovating lens and the over-pessimistic defending lens suggests some caution and the need to adopt a neutral stance with regards to the potential positive and negative effects of CoPs. For example, while frictions

and protectionism might hamper innovation, they can also promote it through the creation of alternative communities and the competition among them. The difficulties experienced by newcomers in attempts to gain access to a CoP might lead to the identification of new solutions to old problems so that what initially appeared a hindrance becomes an opportunity. Empirical research would shed more light on these paradoxical situations.

Table 7 presents a summary of new research opportunities generated by challenging the lenses and promoting dialogue between them.

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Table- 7 around here

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## 7.3 *Creating a productive dialogue between the lenses by tapping into new methodological resources*

Productive dialogue and future research could emerge from examining the topics typical of each lens using different and novel methodological resources. Analysis of 82 articles on CoPs published between 1997 and 2012 indicates that the majority (70% of the sample) use a case study or other qualitative methods (Bolisani & Scarso, 2014). Most non-qualitative studies are conducted from an innovating lens. This could be expected given the predominance initially of the learning lens and the anthropological origins of the concept (Jean Lave is an anthropologist). However, over the last 30 years, things have changed. The widespread adoption of CoPs among practitioners, which might have deterred academics from further research on CoPs, now provides a valuable topic (and opportunity) for further research and a motivation for academic research using the three lenses to converse with one another and build on each other's work. The widespread utilization of CoPs by all types of organizations

offers opportunities to extend the range of research methods and the research questions related to CoPs. This reduces the methodological barriers between the learning, defending, and innovating lenses.

For example, the diffusion of CoPs makes it possible to conduct large cohort surveys to complement traditional exploratory case studies common in research adopting learning or defending lenses (Agrawal & Joshi, 2011). It might allow scholars to respond to critical unanswered questions which small N, in-depth case studies cannot address. A large survey approach could allow researchers to address the question of whether CoPs facilitate knowledge sharing and under what conditions (learning lens). Survey-based research also might resolve the question of whether CoPs add value and foster innovation – especially radical innovation. This is a critical question for researchers taking the innovating lens. Large cohort studies might explain how CoPs add value. Our literature review indicates that CoPs are used as more than only social tools to foster knowledge stewarding and innovation; they are used also as rhetorical devices to overcome barriers and human resources management tools to attract talent and improve job quality. While there are many local examples, which ways of using CoPs are most effective requires further theorization and testing. Finally, large cohort studies could provide empirical evidence to resolve or revisit the argument that CoPs suffer from being formalized, and resolve the tensions between the learning and innovating lenses. Recent MO studies question the idea that formalization of work processes and the emergence of self-organized types of sociality are mutually exclusive (Monteiro & Adler, 2022). However, there is evidence that the latter often builds on the former. CoPs would constitute an ideal setting to explore this topic both qualitatively and quantitatively in more depth to contribute to the debate on organizational paradoxes (Smith et al., 2017).

Other methodological developments could be applied to advance the study of CoPs and build bridges among the lenses. For example, recent developments in configurational methods like

qualitative comparative analysis (Ragin, 1987) could be used to investigate successful ways

to establish CoPs (Anand et al., 2007) beyond the anecdotal and normative evidence in the

practitioner literature (Saint-Onge & Wallace, 2003; Wenger et al., 2002). Digital sociology

methods could also be used to map issues, identify key actors, actor flows, and involvement

in specific online issue spaces to study empirically the nature of the knowledge sharing

activities within and across CoPs (Marres, 2017).

Finally, all three lenses would benefit from tapping into recent socio-material sensitivities in

the study of work and organization (Carlile et al., 2013). Most studies of CoPs using a

learning, defending, and innovating lens are human-centered and tend to exclude non-human

agency from the inquiry. CoP studies often do not include the role of materials (natural and

technological) for supporting learning and collaboration processes (Carlile et al., 2013).

Engaging with debate on socio-materiality might suggest alternative sources of membership,

involvement, and identification with CoPs – for example, material indwelling (Pyrko et al.,

2017), and the processes used by CoP members to internalize tools in their everyday routines

and performance in practice, and to construct their self-image. The agential role of artifacts in

assembling and maintaining CoPs is also ignored in studies using an innovating or defending

perspective. These studies would benefit from more direct engagement with recent

developments in the socio-materiality debate (Orlikowski, 2007; Orlikowski & Scott, 2008).

For instance, the affordances of tools and artifacts within innovative CoPs should be

investigated further (e.g., Burke & Wolf, 2020; Paroutis et al., 2015), especially since the

idea of boundary objects (Star & Greisemer, 1989) has been stretched so far that it prevents

rather than facilitates understanding. Kaplan et al. (2017) provide a good example of how

socio-material sensitivity can inform work on CoPs: they studied interdisciplinary practices

and creation of a research CoP and found that boundary spanning and innovation-oriented

collaborative work occurred when early career researchers formed symbiotic relationships

with their scientific instruments, while the instruments generated provisional interdisciplinary possibilities which more junior researchers needed to actualize.

## *7.4 Establishing dialogue between the study of CoPs and mainstream management and organization studies*

As our historical review demonstrates, CoP was conceived and developed mostly outside traditional MO academic circles and thus benefited marginally from inputs derived from other ongoing scholarly debates. We argue that a productive dialogue could be established between the lenses and the broader CoP research and adjacent developments in mainstream MO research, for example, research on occupational communities, research on identity and identity work in organizations, and research on networks and networking

### 7.4.1  CoPs and occupational communities: a long-overdue dialogue

The first and very promising dialogue could be established between the study of CoPs and the study of occupational communities (for a definition, see Table 3). These concepts have several historical and conceptual overlaps. For example, both literatures agree that "social worlds coalesce around object produced and the services rendered by people at work" (Van Maanen & Barley, 1984, p. 5); that members derive a strong sense of self-identity from what they do; that consciousness of a kind constitutes the foundations of sense of community and solidarity among members; and that this solidarity is nurtured by belonging to the same reference group, having rare and common abilities, and using specific linguistic code and repertoires to make distinctions (e.g. mechanics' ability to hear "a problem with the steering rack" when lay car drivers hear only noise) (Anteby et al., 2016; Bechky, 2011; Van Maanen & Barley, 1984).

Historically, in several studies of CoPs, including some of the seminal contributions in the field, the object of study includes social groups that could equally qualify as occupational communities (e.g., midwives, tailors, quartermasters: Lave & Wenger, 1991; photocopier repairers: Orr, 1996; claims processors: Wenger, 1998; bricklayers: Gherardi & Nicolini, 2002; nurses: Andrew & Ferguson, 2008). However, work on occupational communities and CoPs have different focuses. Traditionally, occupational community scholars were interested in the structuring power of work activities and focused on issues of self-control, jurisdictional battles among occupational communities (Fayard et al., 2017), and tensions between occupational communities and the organizations in which they are embedded (Bechky & Chung, 2018; Huising, 2015). Most of these scholars use what we call a "defending lens", and apply it even if the empirical phenomena are learning and knowledge sharing. While knowledge plays a central role in occupational communities ("to know what dentistry, firefighting, accounting, or photography consists of and means to those who pursue it is to know the cognitive, social, and moral contours of the occupation"; Van Maanen & Barley, 1984, p. 8), the focus is on the definition and defense of task jurisdiction and occupational identity – that is, "the link between a profession and its work" (Abbott, 1988, p. 20). Accordingly, many of these studies referred to previously as adjacent to the learning CoP literature focus on conflictual and adversarial interactions while the cooperative dimension is backgrounded (Anteby et al., 2016, p. 211). Moreover, studies of how occupational communities produce "content innovations" are rare, and only occasionally examine the power dynamics and inequalities within them. Finally, occupational community scholarship lacks fined-grained theory of how the unique abilities around which the occupation coalesces are transmitted from one generation to the next, and relies on traditional views of work socialization (Saks & Ashforth, 1997).

The divergent focus and traditional segregation between these two scholarly communities (which themselves constitute interesting empirical puzzles) prefigure a number of possible synergies. Work on occupational communities could help to integrate and address many foundational issues related to CoPs, including boundaries and inclusions (which occupational community scholars solve elegantly by letting members decide who is in and out). It could also help to reframe the debate on the relationship between CoPs and management. CoP theory has much to offer. Learning together in an effort to refine, perfect, and innovate makes the collective endeavor an alternative source of solidarity and identification, which could help explain the commonalities that sustain occupational communities. Mutual assistance and collaboration constitute further sources of sociality beyond the sharing of values, norms, and perspectives used to justify occupational communities. The combination of these concrete task-related social activities might overcome some of the weaknesses in the concept of occupational community, which in some formulations appear as variants of an imagined community (a socially constructed sense of bonding generated by the fact that members have a mental image of their affinity; Anderson, 1983).

CoP theory could contribute especially to what Anteby et al. (2016, p. 211) call the "relating lens" of occupational communities, defined as "understanding when and how occupational groups collaborate with other groups to perform interdependent work or collectively expand their social influence". CoPs studies provide in-depth examination of the mechanisms enabling occupational groups to overcome their differences and collaborate to perform interdependent work (Anteby et al., 2016, p. 214). Moreover, the CoP perspective allows investigation of collaborative dynamics, which have a relatively short time span; the focus in studies of occupational communities is on medium- and long-term processes. In fact, one could envisage a beneficial division of labor given the relevance of the notion of occupational

community, especially in the case of occupations that "display a rather remarkable stability in social space and time" (Van Maanen & Barley, 1984, p. 7).

### 7.4.2 CoPs and studies of identity and identity work in organizations

Another way to reinvigorate the debate on CoPs is to establish a dialogue with scholarly work on organizational identity. Despite putting identity at the core of CoP theory, Wenger (1998) and later scholars rarely engage with the extensive body of work on identity transition or identity work in organizations. As a consequence, the literature on CoPs fails to distinguish between personal and work identities (the work-related self-designation and self-attributions by the actor vs. the identities imputed by others; Snow & Anderson, 1987). These studies assume also that CoPs offer only one possible way to develop a work identity and implicitly treat newcomers as a tabula rasa in terms of identity (in reality, novices are likely to have developed a number of social selves to present themselves in public). Importantly, the CoP literature fails to engage with the stream of work on identity in organizations which shows that acquiring a new work identity requires experimenting with provisional selves,  and trialing different but not yet fully elaborated work identities and evaluating them in terms of the kind of professional one might become (Ibarra, 1999; Pratt et al., 2006). As a result, the CoP literature does not consider the possibility that identification with the community might fail or have unintended consequences (for a rare exception, see Hodges, 1998). Similarly, the tension between organizational, occupational, and practice-related identification possibilities is rarely explored, with the result that we know little about how organizational identity and other forms of identity are interwoven in CoPs.

More extensive and better engagement with scholarship on work-related identity and organizational identity work would enrich understanding of CoP processes and vice versa. For example, CoPs constitute an interstitial form of identification possibility which differs

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from organizational or occupational identity. The concept of CoPs adds granularity and depth to the idea of multiple organizational identities (Albert & Whetten, 1985; Pratt, 2016), raising the question of when identification with a CoP might complement or conflict with organizational identity. Addressing this question would contribute to cross-level identity research and how the levels interact (Ashforth et al., 2011). Similarly, because they often straddle organizational boundaries, CoPs might offer practitioners alternative self-images. Thus, CoPs could be a source of identity conflict and innovation in organizations which suggests an ecological and relational view of identification (Besharov, 2014).

### 7.4.3 CoPs and the study of social networks

Our review has shown that often CoPs are viewed as ways to share learning and knowledge within and across organizations (Gittelman & Kogut, 2003; Wang & Noe, 2010). Thus, CoPs could be seen as networking resources that practitioners can tap into to obtain advice and problem-related information. Productive dialogue could be triggered by introducing (formal) study of knowledge sharing and advice networks and social network analysis more generally, into the CoP debate.

Social network research seeks to explain organizational/social phenomena by examining the relationships among various actors and "is concerned with the structure and patterning of … relationships" (Tichy et al., 1979, p. 1). Research in this stream assumes that patterns of connectivity underpin the complexity of social relationships, which also could explain other consequences such as socialization (Morrison, 2002), creativity (Perry-Smith, 2006; Perry-Smith & Shalley, 2003), innovation (Tsai, 2001; Tsai & Ghoshal, 1998), and diffusion of ideas (Abrahamson & Rosenkopf, 1997). Social networks tend to be considered means to access and circulate information and knowledge, and traditionally social network analysis has involved how ideas and knowledge flow among social ties (Chauvet et al., 2011) and the

structure and effectiveness of advice networks (Cross et al., 2001; Nebus, 2006). Central to this literature is the notion of knowledge brokering, the idea that central actors who are connected and can bridge different social networks are critical to the circulation of knowledge (Hargadon, 2002).

Despite similarities in the research agendas of CoPs and knowledge-sharing social network research, their overlaps are limited. One exception is Cross et al.'s (2006) study which investigates how social network research can improve CoPs. The authors propose that network connectivity could be improved by making interactions visible to help community leaders make informed interventions (e.g., identifying existing brokers and involving them in the life of CoPs, acting to retain the most central members, shielding them from excessive demands).

Combining research on CoPs with social network analysis would benefit both fields. First, examining CoPs using social network analysis could deepen understanding of how CoPs operate and how learning and innovation occur within them. Moreover, this combination would also benefit social network research. Researchers have for long argued that social network research could be strengthened were formal analysis to be combined with analysis of the content and meaning of the relations among the actors. In their study of advice networks, for example, Cross et al. (2001, p. 231) underling the "importance of going beyond the advice network to uncover the dimensions of advice that underpin the advice network". CoP theory provides elements to enrich understanding of what this content and meaning might constitute. Research on CoPs also resonates with recent developments in studies of social networks and the spread of social behaviors. For example, Centola (2018) and Centola and Macy (2007) question the idea that weak ties – people who bridge between groups and connect socially distant locations – are always effective for producing innovation and change. Their experimental work shows that while brokering facilitates rapid diffusion of information,

innovation adoption and actual change require multiple sources of activation, including reports of prior adoption by a sufficient number of peers with proven credibility, legitimation from associates, and emotional contagion (Centola & Macy, 2007). This new generation of studies on the relationship between homophily and innovation could shed light on the mechanisms through which CoPs support innovation and knowledge stewarding (Ertug et al., 2021). Conversely, CoPs constitute a valuable theoretical construct to advance research on complex contagion (Centola, 2018); the coalition around a common practice provides several of the necessary social, cognitive, and emotional conditions identified by this line of research.

## 8   CONCLUDING REMARKS

In this paper, we reviewed the literature on the concept of CoPs using a three-lens (learning, innovating, and defending) framework. The lenses reflect our finding that historically researchers have approached the study of CoPs differently, depending on their assumptions regarding their function, purpose, and expected effects (i.e., whether the CoP is aimed at fostering learning/sharing knowledge, facilitating expertise innovating, or defending/perpetuating interests). We used the three lenses to make sense of the historical development of the idea of CoP, summarize and systematize the extant literature, and identify a research agenda to advance research in this field. We can conclude that any advancements in research area will come from its dialogical expansion (between lenses and with adjacent fields) rather than through hermeneutic elaboration. Although the use of the word "community" may have contributed to initial acceptance of the concept (Duguid, cited in Su et al., 2012, p. 142), in the long run, it has created as many if not more problems than alternatives such as "cadre", "collective", or "collaborative of practice". To advance the study of CoPs, we must resist the temptation to resurrect definitional controversies and acknowledge the poisoned chalice attached to the notion of communities (occupational

community scholars should take note). We need to revert to the original process-oriented meaning and focus on what CoPs might mean in a post-industrial society, what CoPs look like in the twenty-first century, and what study of the nexus between learning, practicing, and participating might contribute to our understanding of other organizational phenomena. Thirty years after its introduction, there may still be life in this important concept.

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| Journal | Number of Papers | Sharing/ Learning | Innovating | Perpetuating /Defending |
|---|---|---|---|---|
| *Abacus* | 1 | 1 | | |
| *Academy of Management Journal* | 2 | | 1 | 1 |
| *Academy of Management Learning and Education* | 2 | 1 | 1 | |
| *Academy of Management Review* | 1 | 1 | | |
| *Accounting Forum* | 1 | | | 1 |
| *Annals of Tourism Research* | 2 | 1 | | 1 |
| *British Accounting Review* | 1 | 1 | | |
| *British Journal of Industrial Relations* | 1 | | 1 | |
| *British Journal of Management* | 3 | 2 | | 1 |
| *Business and Society* | 1 | 1 | | |
| *Business Ethics Quarterly* | 2 | 1 | | 1 |
| *Business History* | 2 | 1 | 1 | |
| *Business Strategy and the Environment* | 1 | | | 1 |
| *California Management Review* | 2 | | 2 | |
| *Critical Perspectives on Accounting* | 1 | | | 1 |
| *Decision Support Systems* | 2 | 1 | 1 | |
| *Economic and Industrial Democracy* | 1 | | | 1 |
| *Entrepreneurship and Regional Development* | 3 | 3 | | |
| *European Accounting Review* | 1 | 1 | | |
| *European Journal of Marketing* | 2 | | 1 | 1 |
| *Gender, Work and Organization* | 3 | 2 | | 1 |
| *Group and Organization Management* | 1 | | 1 | |
| *Human Relations* | 6 | 3 | 2 | 1 |
| *Human Resource Management Journal* | 1 | | | 1 |

| | | | | |
|---|---|---|---|---|
| Human Resource Management Review | 1 | | 1 | |
| IEEE Transactions on Engineering Management | 6 | | 6 | |
| Industrial Marketing Management | 1 | | 1 | |
| Information and Management | 1 | 1 | | |
| Information and Organization | 5 | 3 | | 2 |
| Information Society | 8 | 5 | 2 | 1 |
| Information Systems Research | 2 | 2 | | |
| International Business Review | 2 | | | 2 |
| International Journal of Electronic Commerce | 2 | 1 | 1 | |
| International Journal of Hospitality Management | 1 | 1 | | |
| International Journal of Human Resource Management | 2 | 1 | | 1 |
| International Journal of Operations and Production Management | 3 | 1 | 2 | |
| International Journal of Production Research | 1 | | 1 | |
| International Small Business Journal: Researching Entrepreneurship | 1 | 1 | | |
| Journal of Business Ethics | 6 | 5 | 1 | |
| Journal of Business Research | 3 | 1 | 2 | |
| Journal of Consumer Research | 1 | | 1 | |
| Journal of Economic Behavior and Organization | 1 | | 1 | |
| Journal of Information Technology | 1 | 1 | | |
| Journal of International Management | 3 | 2 | 1 | |
| Journal of Knowledge Management | 55 | 24 | 28 | 3 |
| Journal of Management | 1 | | 1 | |
| Journal of Management Information Systems | 4 | 1 | 2 | 1 |

| | | | | |
|---|---|---|---|---|
| *Journal of Management Inquiry* | 2 | 1 | 1 | |
| *Journal of Management Studies* | 6 | 4 | 1 | 1 |
| *Journal of Organizational Behavior* | 1 | | 1 | |
| *Journal of Product Innovation Management* | 3 | | 2 | 1 |
| *Journal of Strategic Information Systems* | 5 | 2 | 3 | |
| *Journal of Sustainable Tourism* | 1 | | 1 | |
| *Journal of the Operational Research Society* | 1 | | 1 | |
| *Journal of World Business* | 2 | 1 | 1 | |
| *Long Range Planning* | 3 | 1 | 2 | |
| *Management Accounting Research* | 1 | | | 1 |
| *Management Learning* | 25 | 15 | 6 | 4 |
| *Management Science* | 1 | | 1 | |
| *MIS Quarterly: Management Information Systems* | 1 | 1 | | |
| *New Technology, Work and Employment* | 1 | | | 1 |
| *Organization* | 6 | 3 | 2 | 1 |
| *Organization Science* | 8 | 3 | 4 | 1 |
| *Organization Studies* | 9 | 4 | 1 | 4 |
| *Production Planning and Control* | 4 | | 4 | |
| *Public Administration Review* | 1 | 1 | | |
| *R and D Management* | 2 | 1 | 1 | |
| *Research Policy* | 10 | 3 | 5 | 2 |
| *Strategic Organization* | 1 | | 1 | |
| *Technological Forecasting and Social Change* | 7 | 2 | 5 | |
| *Technovation* | 4 | 2 | 2 | |
| *Tourism Management* | 2 | 1 | 1 | |
| *Work, Employment and Society* | 2 | 1 | | 1 |
| **Total** | **263** | **116** | **108** | **39** |

**Table 1:** Summary of reviewed papers

| | CoP Main Function | | |
|---|---|---|---|
| | **Learning & Sharing Knowledge** | **Innovating** | **Defending & Perpetuating Interests** |
| **Intended outcome** | − Develop competencies in practice<br>− Facilitate knowledge sharing<br>− Circulate knowledge across organizational, generational and practice boundaries | − Modifying and improving work practices<br>− Generate ideas<br>− Solve problems | − Protect the experts' social position<br>− Defend against other communities<br>− Defend from change, control and uncertainty |
| **Underlying mechanisms** | − Legitimate peripheral participation<br>− Transferring tacit knowledge through situated curriculum<br>− Co-creating identity<br>− Storytelling<br>− Inscribing/ encoding knowledge in artifacts | − Incrementally improve local practices<br>− Share innovative ideas across organizational boundaries<br>− Joint sense-making<br>− Vicarious learning | - Developing a strong core identity<br>- Delegitimizing nonmembers' knowledge<br>- Making artifacts and discursive practices esoteric |

**Table 2.** The three CoP lenses used in the literature

| CONSTRUCT | DEFINITION |
|---|---|
| Communities of practice (CoPs) | "A group of people who cohere through mutual engagement on an 'indigenous' (or appropriated) enterprise and overtime create a common repertoire and shared identity" (Cox, 2005, p. 531)<br><br>"Groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al., 2002, p. 4)<br><br>"A group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment" (Wenger et al., 2002, p. 34) |
| Virtual communities of practice (VCoPs) | "Online social networks in which people with common interests, goals, or practices interact to share information and knowledge, and engage in social interactions" (Chiu, Hsu, & Wang, 2006, p.1880) |
| Networks of practice (NoPs) | "Extended epistemic networks [in which] pPractice creates the common substrate…[T]he relations among network members are significantly looser than those within a community of practice…unlike in communities of practice, most of the people within such a network will never know, know of, or come across one another. And yet they are capable of sharing a great deal of knowledge… crossing the boundaries of particular organizations and following routes prepared by practice" (John Seely Brown & Duguid, 2001, p. 205). |
| Collectives of practice | "Temporary organizations or project groups within firms consist of people, most of whom have not met before, who have to engage in swift socialization and carry out a pre-specified task within set limits as to time and costs. Moreover, they comprise a mix of individuals with highly specialized competencies, making it difficult to establish shared understandings or a common knowledge base (Lindkvist, 2005, p. 1190). |
| Occupational community | A group of people who consider themselves to be engaged in the same sort of work; who identify (more or less positively) with their work; who share with one another a set of values, norms, and perspectives that apply to, but extend beyond work-related matters; and whose social relationships meld the realms of work and leisure (Van Maanen & Barley, 1984) |

**Table 3:** CoPs and cognate constructs

| | |
|---|---|
| Brown & Duguid (1991) | Drawing on Lave and Wenger (1991) and Orr (1996), the authors build an argument that CoPs are the vital social spaces that develop organizational learning and innovation. This argument opens new vistas for organizational studies research that can incorporate CoPs. |
| Wenger (1998) | Practices are properties of local communities and are spaces where people learn, negotiate meanings, and construct identities. CoPs are characterized by different layers of membership, such as core members, occasional members, and peripheral members. Strong attention is paid to the role of identity: people identify with practice through participation (direct engagement), alignment (following the direction of the practice), and imagination (picturing one's place in the practice). |
| Amin & Roberts (2008) | The authors argue that other important social learning formations exist beyond CoPs that require researchers' attention. Hence, the focus on CoPs alone is considered limiting, and researchers are encouraged to examine other social learning formations such as virtual communities. |
| Pyrko et al. (2017) | The authors introduce the process of "interlocked indwelling" ("thinking together") through which tacit knowledge is shared indirectly in CoPs. On that basis, they assert that CoPs could not come into life without members thinking together about real-life problems that people genuinely care about. This paper brings Polanyi's (1962, 1966) indwelling to CoPs and makes a theoretical link of CoPs and phenomenology, and thus practice studies more broadly. |
| Beane (2019) | The author cautions that the technological developments could deny legitimate peripheral participation for CoP members, thus depriving them of opportunities to become socialized into the practice. Beane observes that CoP members respond to similar challenges imposed by technological developments through shadow learning – taking initiatives to improve access to practice and community learning. |

**Table 4**: Examples of papers that take the learning lens

| | |
|---|---|
| Dougherty (2001) | The study examines how innovative and noninnovative organizations address the tension between differentiation and integration, organize innovation, and incorporate streams of innovation with continuing operations. The basic assumption is that noninnovative views of work actually prevent people from innovating. CoPs provide an archetype that allows innovative organizations to reimagine their work and value creation in a nonmechanistic way without degenerating into chaos. CoPs can create value because this is where the work is carried out. CoPs should be aligned by enacting standards of the practice and exposing values rather than standardizing actions and behaviors, as in bureaucratic organizations. |
| Swan et al. (2002) | The study examines whether CoPs can provide a performative advantage in the case of radical innovations and whether CoPs can indeed be operationalized and mandated. Using the case of a new medical treatment, the study illustrates the benefits of CoPs as a way to foster cross-collaboration in a multi-profession environment. The study, however, questions managers' capacity to mandate CoPs and indicates that at times CoPs can be used rhetorically as a legitimization tool as much as a "social object" that can foster innovation. |
| Brown (2004) | This study conceptualizes CoPs as good sensing mechanisms for discovering new innovations and ideas, which tend to be developed at the periphery of business. The main argument is supported with examples of times when peripheral events have caused ripples that reached to the center of an organization. In this sense, CoPs are a tool for developing sensing organizations and enabling better visibility of the activities in the periphery as a source of strategic insight. |
| Kirkman et al. (2013) | This study examines organizational CoPs as a tool to fully engage employees' innovation potential in global companies and investigates whether their performance can be predicted. Using organizational CoPs from *Fortune* 100 multinational mining and mineral processing firms, the study identifies a U-shaped relationship between CoP performance and nationality diversity within CoPs. The study also examines the impact of media richness on performance. |
| Pattinson et al. (2016) | This study investigates strategizing practice in CoPs, which are seen as a place for developing strategic foresight for long-term planning. Using CoPs of engaged strategists located across organizational levels, the authors examine the mechanism for developing insight about emerging futures, innovative ideas, and strategies. These mandated "hubs" facilitate sharing of stories and insights about strategic adjustment and innovation; however, management can also use them to control or enable the planning process. |

**Table 5:** Examples of papers from the innovating lens

| | |
|---|---|
| Contu & Willmot (2003) | Reinterpreting Orr's (1996) study, this paper criticizes the romanticized readings of CoPs and argues that CoPs can work as gatekeepers for exclusion and marginalization. |
| Yanow (2004) | This study explores a case in which delivery van drivers' intimate knowledge about consumer preferences of a baked food business was dismissed. Referring to the studies of exclusion in sociology, the author argues that CoPs can perceive frontline knowledge as mundane and irrelevant and thereby ignore important insights. |
| Hong & O (2009) | The study presents a case study of a transformation project that involved an in-house and outsourced CoPs and shows how the in-house IT CoP frustrated the engagement of the external CoP, which then resulted in significant challenges for the transformation project. |
| Rennstam & Kärreman (2020) | The authors explore how engineering CoPs respond to project milestones and targets set by senior management during the course of new product development. They find that engineering CoPs avoid confrontation with management by creating a shielded space to protect the enterprise of the CoP and to engage in "constructive disobedience". |
| Heizmann (2011) | The study presents a case of how regional and headquartered human resources departments delegitimized one another in their interactions following a corporate decision to centralize human resources programs. The author shows that the regional and headquartered CoPs used discursive tactics to delegitimize each other. |
| Mørk et al. (2010) | The authors study the introduction of a new technique, laparoscopy, to the practice of surgery and explore how various CoPs responded to this change and, consequently, renegotiated their power relations. The study shows how CoPs reposition themselves against each other when dealing with the new technology. |
| MacPherson & Clark (2009) | The study examines the utility engineer CoPs of a utility company and asks why learning – which is critical for the utility company to avoid damage costs during the work – across CoPs does not take place. The authors find that excessive reliance on tools and systems creates islands of practice, which frustrate learning. |

**Table 6:** Examples of papers from the defending lens

| Lens | What *is foregrounded?* | In dialogue with Learning | In dialogue with Innovating |
|---|---|---|---|
| **Learning** | - The becoming of novices and turning into masters<br><br>- The processual nature of legitimate peripheral participation and acquisition of identity | | |
| **Innovating** | - Innovating work practices<br><br>- Meeting organizational goals around innovations and idea generation | -Attending to the questions around how the learning process unfolds in post-industrial work arrangements and digital economy in the absence of traditional communities.<br><br>-Attending to questions around technology and materiality and how they mediate learning in digitized work contexts.<br><br>-Attending to questions around learning when organizational goals and deadlines compress the learning process | |
| **Defending** | -Protection of expert and community position<br><br>- Making knowledge inaccessible to outsiders | -Defending mechanisms may change as communities start to learn from their past, and their exposure to other communities<br><br>- The increasing casualization of work can weaken the defense mechanisms as the tightly knit communities disappear<br><br>- Defending lens can help explain why the introduction of various forms of materiality (e.g., robotics, AI, simulation) may incapacitate learning as CoP members start to lose their status and learning becomes compromised. | - Attending to questions around how post-industrial work can still protect domains of expertise<br><br>- Investigating how the tensions and conflicts that are the impetus for innovating CoPs can result in innovating practices of defending CoPs.<br><br>- Instead of taking optimistic and pessimistic views toward CoPs, taking a neutral view to unpack how CoPs work when put into practice and serve organizational objectives<br><br>-Questioning assumptions about firmly established practice repertoire and knowledge that is held by defending lens |

**Table 7:** Putting lenses in conversation